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ABSTRACT

Focusing on the occupational clusters of health, hospitality, recreation, clerical, technology, and research, this unit entitled "Airline Workers" is one of four grade 3 units which are part of a total set of twenty-seven career development curriculum units for grades K-6. This unit is organized into four sections. Section I identifies one career development-centered curriculum (CDCC) element (life-role understanding), three career development themes (e.g., the student will understand life-role activity as societal-contributing), three unit goals (e.g., the student will become aware of the contributions made to society by the airline industry), and three performance objectives (e.g., given ten statements, the student will identify, with at least 80% accuracy, those contributions made to society by the airline and its workers). Also included in Section I are evaluation procedures for a pre- and post-assessment, three student evaluation sheets, answer keys, and evaluation tabulation forms. Section II describes teaching strategies for nine unit subtopics (capsules) and includes suggested resources for teaching each one. Capsule titles include meteorologist, flight attendant, pilot, co-pilot, and flight engineer. Section III contains twenty-five teacher reference sheets and section IV contains twenty-five student activity sheets. (JH)

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Suggested for
Grade 3

AIRLINE WORKERS

one in a series
of

CAREER DEVELOPMENT CURRICULUM UNITS

for the
Elementary Classroom

CE 020 090

CDCC Project
ESEA Title III
Coloma Community Schools
P.O. Box 218
Coloma, Michigan 49038

AIRLINE WORKERS

Grade 3

(Second Edition)

one in a series
of

CAREER DEVELOPMENT CURRICULUM UNITS

for the

ELEMENTARY CLASSROOM

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CAREER DEVELOPMENT CENTERED CURRICULUM PROJECT

ESEA TITLE III

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FOREWORD

The series "Career Development Curriculum Units for the Elementary Classroom" represents the outcome of three and one-half years of effort on the part of many individuals within Coloma Community Schools. The work was completed under an ESEA Title III project entitled "Career Development Centered Curriculum" (CDCC) in cooperation with the Michigan Department of Education. The series constitutes a response to the ever-increasing need to augment and enhance each students' career development process.

The series of twenty-seven curriculum units consists of a logical, sequenced arrangement of learning activities based on development tasks and content consistent with accepted career development theory and practice.

The approach is one of integrating career awareness with existing subject matter as well as building into the curriculum a sound approach to self-awareness. Learning activities are linked to performance objectives for which there are evaluation techniques; making it possible to assess impact on learners.

Gerald Geik
Project Director

ELEMENTARY CAREER DEVELOPMENT: THE UNIT APPROACH

An Elementary Career Development Curriculum Unit is a group of interdisciplinary learning experiences for which there are expected outcomes identified in the form of performance objective. Because they are interdisciplinary, they include learning and practice in math, communication arts, science and social studies as vehicles for conveying the career development aspects of an individual's growth. Learning activities are built around either self-awareness or occupational cluster topics.

Developed by teachers or counselors, they are based on CDCC themes and elements, aligned with career developmental tasks.

They include a variety of teaching strategies in the form of role-playing, discussions, work sheets, field trips, use of role models, use of A.V. materials, etc. They include evaluation strategies, (both observational and paper and pencil), based on unit performance objectives. Time of implementation for each unit is approximately two instruction hours per day for a period of two to three weeks. One unit is taught during each nine-week grading period at each grade level.

A single unit is a small part of a total sequence of learning experiences that all together contribute to the individual's career development process.

UNIT TITLES IN THE SERIES "CAREER DEVELOPMENT CURRICULUM UNITS FOR THE ELEMENTARY CLASSROOM"

	UNIT TITLE	FOCUS
K	ME	Self Awareness: Physical Self
	INSIDE ME	Self Awareness: Emotional Self
	SCHOOL WORKERS	Occupational Clusters: Public Service, Clerical
	COMMUNITY HELPERS	Occupational Clusters: Public Service, Natural Resources, Health
1	FRIENDSHIP	Self Awareness: Social Self
	A FEW OF OUR FAVORITE THINGS	Occupational Clusters: Arts, Technology, Research, Personal & Product Services
	TELEPHONE WORKERS	Occupational Clusters: Transportation, & Communication
	THE FOOD STORE	Occupation Clusters: Business & Sales

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	UNIT TITLE	FOCUS
2	MY ENVIRONMENT	Self Awareness: Environmental & Physical Self
	BAKING INDUSTRY	Occupational Clusters: Natural Resources, Manufacturing
	FIREFIGHTERS	Occupational Cluster: Public Service
	PET INDUSTRY	Occupational Clusters: Public Service, Personal & Product Services
3	DAIRY INDUSTRY	Occupational Clusters: Health, Manufacturing
	RESPONDING BEHAVIOR	Self Awareness: Emotional & Social Self
	RESTAURANT INDUSTRY	Occupational Clusters: Health, Hospitality and Recreation
	AIRLINE WORKERS	Occupational Clusters: Health, Hospitality, Recreation Clerical, Technology & Research
4	FORESTRY	Occupational Cluster: Natural Resources
	BEST FOOT FORWARD	Self Awareness: Self Appraisal, Goal Setting and Social Self
	POSTAL WORKERS	Occupational Cluster: Public Service
	POLICE WORKERS	Occupational Clusters: Clerical, Public Service
5	OUR GROUP AND ME	Self Awareness: Group Roles & Social Self
	MANUFACTURING	Occupational Clusters: Clerical, Business, Sales & Trades, Manufacturing
	HOSPITAL WORKERS	Occupational Clusters: Technology & Research, Clerical, Personal & Product Service & Health
	MY FEELINGS ARE ME	Self Awareness: Emotional Self
6	GOING ABROAD, ANYONE?	Occupational Clusters: Transportation & Communication, Hospitality & Recreation
	ME, MYSELF AND I	Self Awareness: Physical, Emotional, Social & Intellectual Self
	T.V. INDUSTRY	Occupational Clusters: Business, Sales & Trades, Arts and Entertainment, Transportation & Communication, Technology and Research

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THE CDCC PROGRAM (K-6)

One dimension of human growth and development is the career development process. In this process each person progresses through a sequence of developmental tasks that make it possible for that person to become a self-fulfilled individual. This is a life-long process involving experiences and decisions that sequentially build on each other. When taken cumulatively, they contribute to the formulation of a realistic self-concept that can be expressed through one's occupational, leisure, family, and civic life-roles.

The career development process can be augmented by building career development curriculum units into the already existing curriculum. In developing the units, three things were considered: 1) career development themes, 2) career development tasks through which individuals normally progress, and 3) subject matter in the already existing curricula. All three of these were brought into focus when generating component goals and objectives and developing learning activities.

The curriculum units altogether constitute the sequential placement of career development activities into the existing K-6 curriculum. Career Development Themes define the *scope* and Career Development Tasks define the *sequence* of the CDCC program. To signify the relationship of the elementary program to the total, elements, themes, developmental tasks and occupational clustering system are presented.

CDCC PROJECT ELEMENTS AND THEMES

CDCC ELEMENT I -- Life-Role Understanding (occupational, avocational, family, civic)

- Theme 1.1 The student will understand life-role activity as self-enhancing. (psychological, economic, life-style implications)
- Theme 1.2 The student will understand life-role activity as societal-contributing. (economic, societal-need implications)
- Theme 1.3 The student will understand the relationship of education to life roles.
- Theme 1.4 The student will understand the desirable attributes of individuals in life roles.
- Theme 1.5 The student will understand the characteristics of life-roles and their functions.
- Theme 1.6 The student will understand the relationship of life-role changeableness to individual cope-ability.

CDCC ELEMENT II -- Decision-Making Skill Development and Utilization

- Theme 2.1 The student will set personally relevant goals as part of decision-making.
- Theme 2.2 The student will identify and use information about self and life roles as part of decision-making.
- Theme 2.3 The student will understand decision-making as identifying alternatives, selecting the alternative most consistent with goals, and taking steps to implement a course of action.

CDCC ELEMENT III -- Realistic Self Concept Formulation

- Theme 3.1 The student will understand his or her own uniqueness as a result of personal learning, growth, and maturation.
- Theme 3.2 The student will understand the relationship of social and education forces to his or her individual development.
- Theme 3.3 The student will understand the relationship of self-knowledge to a value system unique to him or her.
- Theme 3.4 The student will understand the relationship of his or her interests, aptitudes and achievements to career goal realization.

CAREER DEVELOPMENT TASKS*
FOR
LIFE-ROLE UNDERSTANDING, C.D.C.C. ELEMENT I

K-3	4-6	7-9	10-12
Occupational values and attitudes are formed and are used as a basis for judgment. Children establish relationships between experience and action, manipulate language and symbols primarily by imitating models and accommodating their behavior to the behavior observed in others with whom they identify, i.e., people in various life-roles. (Focus is generally on home, school and neighborhood.) Children are acquiring respect for particular people and their life-roles, especially for the work they do. (Adults must foster positive attitudes toward all kinds of life-roles.) Children can distinguish between occupations primarily on the basis of tool and uniform clues. They develop interpersonal skills that permit them to gain acceptance by peers in parallel play and sharing.	Children continue to face the same kinds of tasks but with more complexity. They enter the phase of conceptual learning. They develop the ability to conceive the function of life-roles. They generalize (abstract) their respect for specific people and their life-roles to an appreciation of all people everywhere. As they learn the value of mankind, they learn to value themselves. They increase their knowledge of life-roles by expanding experiences beyond home, school and neighborhood. As they begin to understand the concept of work and value it as an institution, they develop self-direction--this helps build a positive self-concept. They are refining interpersonal skills to build confidence in their ability to successfully interact with peers in more complex types of group activities.	Youth develop the capacity to operate on hypothetical propositions--they have learned to think more logically and abstractly. They are better able to cope with cultural and environmental demands. They can make internal interpretations of environmental transactions and generalize these to other situations. Concepts which have been learned previously are used to build further concepts. As they learn about life-roles and life-role settings, they determine the subtle factors involved in life-role satisfaction and rewards--looking for what they personally find necessary, important and valuable. (They should acquire knowledge about life-roles and curricula to help them think realistically about their futures.)	Youth expand and refine tasks of earlier levels. They determine to a large extent, the course of their own futures. The individual must define the level of his or her educational aspiration and arrange training accordingly. Concepts which the individual holds about self and life-roles become internalized to the point where they form the basis for particular generalizations concerning his or her career life identity. The individual must acquire skills, responsibility, and confidence in life-roles through actual experiences. Through these experiences, individuals test their self concept.

*After Ginzberg (1951), Havighurst (1964), Super (1969), and Tennyson (1970).

CAREER DEVELOPMENTAL TASKS*
FOR
DECISION-MAKING SKILL DEVELOPMENT, C.D.C.C. ELEMENT II

K-3	4-6	7-9	10-12
Fantasy period: Children make unrealistic choices based on dreams and wishes. The individual does not wonder whether he or she has the appropriate abilities to do what he or she wants to do. (Teachers and parents should readily accept unrealistic statements.)	Late fantasy period, early tentative period. (During early tentative period, children should be helped to see that there are still a number of years before career plans must be set.)	Tentative period: The individual begins to recognize the problem of career choice; decisions are tentative but more realistic. The individual is continuously obtaining new information and experience, revising previous choices and making new choices. (Gradually the youngster should be helped to explore the difference between fantasy and reality in making decisions.) The individual begins to formulate a career hypothesis (tentative) --a narrowing process of identifying interests, values, capacities, and opportunities. Making successful decisions strengthens the individual's self-concept.	Late tentative period, realistic period: The individual's considerations become much more practical as well as important. The decision-making process must become personalized. Because the environment is constantly changing, a major real-life problem is how to plan for change--a realistic decision-making process for the individual requiring commitment with tentativeness. As the individual expresses his or her self-concept through complex real-life decisions, he or she becomes able to utilize personal attributes to influence the nature of future choices rather than merely to adapt to external pressures. Learning to make decisions and accept responsibility for them helps the individual develop responsible independence and individuality. The individual's career hypothesis is reformed to make adjustments for changing interests, abilities, values, and increased knowledge of life-roles.

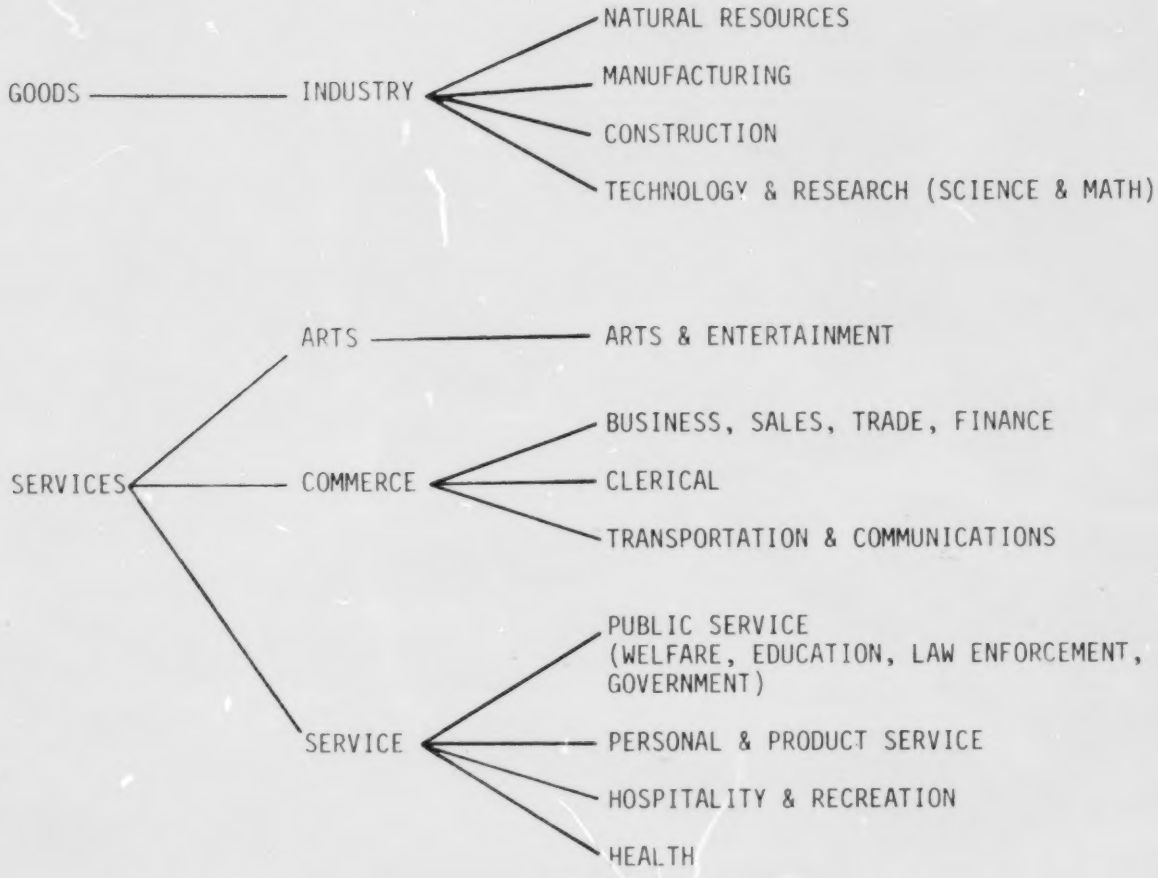
*After Ginzberg (1951), Havighurst (1964), Super (1969), and Tennyson (1970).

CAREER DEVELOPMENT TASKS*
FOR
REALISTIC SELF CONCEPT FORMULATION, C.D.C.C. ELEMENT III

K-3	4-6	7-9	10-12
Children become aware of themselves and their environment and differentiate between them. They are acquiring a sense of some control over their own course of events--a sense of agency. (The child must have successes to build self-confidence thus building tolerance for others). Children begin developing interpersonal skills that permit them to be socially acceptable to their peers. The child realizes that people are not objects and recognizes their humanness. (They need an atmosphere where mistakes are expected and each is respected as an individual.)	The individual is concerned about what he or she can do. The individual should be developing a positive self-concept. Each child develops his or her interest and ability to accomplish tasks. (Children need opportunities to work and reinforcement for it.) Individuals should be building social self confidence in themselves to relate successfully to others. (They need a continued atmosphere of mistakes being expected and tolerated and each is accepted and respected as an individual.)	The individual undergoes great changes physically, intellectually and socially. Each explores his or her self attributes while clarifying the self-concept--each individual reinterprets the self-concept developed earlier in terms of the 'new self'. Each individual must come to accept himself or herself as an entirely different person outwardly, and to some extent inwardly. The single most important task for the individual during this state is to achieve a sense of personal identity.	The individual is engaged in reality testing of the self-concept--each is checking his or her perceptions of abilities, aptitude and other personal resources against external reality. The individual is becoming aware of a preferred life style as related to self-concept.

*After Ginzberg (1951), Havighurst (1964), Super (1969), and Tennyson (1970).

C.D.C.C. OCCUPATIONAL CLUSTERING SYSTEM



SECTION I	Identifies CDCC Elements, Themes, Unit Goals and Performance Objectives to be affected by teaching the unit to a group of learners; includes evaluation design and/or test items for determining impact on learners.
SECTION II	Describes teaching strategies by unit subtopics (capsules) and includes suggested resources for teaching each capsule.
SECTION III	Contains reference information for teachers from which a background can be built to effectively conduct the learning activities.
SECTION IV	Contains activity sheets for student's use.

"Airline Workers"
Grade 3

Unit Rationale

The primary intent of this unit is to help students to become aware of how we depend on many workers within the aviation industry to provide services for society.

The major topics included focus on the inter-disciplinary approach. The activities relate closely to math, science, language arts, and social studies.

Teacher Information

This unit has been designed to be taught over a period of four to five (4-5) weeks. It provides approximately twenty to twenty-five (20-25) instructional hours of teaching.

It is recommended for use in the spring of the year.

Teacher Preparation

1. Study the unit carefully.
2. Make copies of the necessary evaluation and activity sheets.
3. Refer to the Resources and Materials' Columns. Obtain the necessary materials and/or equipment.
4. Use the following sources for background information:

World Book Encyclopedia, Field Enterprises, Chicago, IL., Volume A

Chart available from: United Air Lines, P.O. Box 66100, Chicago, IL. 60666 (Interior section of a DC 10)

Pamphlets - single copies only: "The Wright Brothers", "Charles A. Lindbergh and the Spirit of St. Louis", "First Flight Across the Atlantic" - Smithsonian Institution, and National Air and Space, Museum Library, Washington, D.C.

Air World Ed. (singe chart), 605 Third Ave., New York, NY 10016

Aviation Ed. Kit, Piper Aricraft Corp.

Air Science Ed. Kit (ASE-TK-1), Lock Have, PA 17745

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Grade 3

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ELEMENTS, THEMES, GOALS, AND PERFORMANCE OBJECTIVES
"Airline Workers"
Grade 3

Element #1 - Life-Role Understanding (occupational, avocational, family, civic)

Theme 1.2 - The student will understand life-role activity as societal-contributing. (economic, societal-need implications)

Unit Goal - The student will become aware of the contributions made to society by the airline industry.

Unit P.O. #1 - Given ten (10) statements, the student will identify, with at least 80% accuracy, those contributions made to society by the airline and its workers.
(Evaluation Sheet #2)

Theme 1.3 - The student will understand the relationship of education to life-roles.

Unit Goal - The student will increase his/her awareness of education in relation to careers in aviation.

Unit P.O. #2 - Given the names of five (5) careers in aviation, the student will identify, with at least 80% accuracy, the skill which would be of the most value to each particular worker.
(Evaluation Sheet #3)

Theme 1.5 - The student will understand the characteristics of life-roles and their functions.

Unit Goal - The student will increase his/her awareness of occupations in the aviation industry.

Unit P.O. #3 - Given a list of ten (10) airline workers and a list of ten (10) job descriptions, the student will match the two with at least 80% accuracy.
(Evaluation Sheet #1)

Evaluation Procedure
"Airline Workers"
Grade 3

Pre-Assessment

1. Do not discuss any aspect of this unit with the students before administering the pre-test evaluation sheets.

2. Make copies of Evaluation Sheets #1, 2, and 3 for the students.

3. Distribute Evaluation Sheet #1. Read the directions for this sheet aloud as the students follow along.

4. Read aloud slowly each test item as the students attempt to answer it. Do not explain the words or vocabulary to the students in a pre-test assessment.

5. Follow the same procedure for Evaluation Sheets #2 and #3. Give them during the same evaluation period.

6. Use Evaluation Tabulation Form B, pre-test sections, to record the students' raw scores from the evaluation sheets.

7. Total the columns at the bottom of Evaluation Tabulation Form B to indicate the number of students who met the criteria as stated in the respective Performance Objectives.

8. Transfer these totals to Evaluation Tabulation Form A.

9. Study the pre-test results. Determine the areas in which the students need the most practice. Refer to the goals and objectives.

10. Follow the post-assessment procedure at the conclusion of this unit.

Post-Assessment

1. Follow the same procedure as listed in #1-8 above, but record the results in the post-test sections of the evaluation tabulation forms.

2. File the completed Evaluation Tabulation Forms A and B in the building office.

Evaluation Tabulation Form A

Unit Name "Airline Workers" Teacher _____

Building _____ Grade 3rd

Performance Objective	*Evaluation Sheet #	Test Items	Accepted Level of Performance	# of Students Taking Test	# of Students Reaching Accepted Level	OPTIONAL % of Students Reaching Accepted Level
3 Pre - Identify job descriptions.	1	10	8			
3 Post- Identify job descriptions.	1	10	8			
1 Pre - Identify contributions.	2	10	8			
1 Post- Identify contributions.	2	10	8			
2 Pre - Identify skills.	3	5	4			
2 Post- Identify skills.	3	5	4			

Date Returned to Principal _____

*Administer the tests in the sequence listed above.

Evaluation Tabulation Form B

Unit Name "Airline Workers" Teacher _____

Building _____ Grade 3rd

1. Record the students' raw scores for each evaluation sheet in the correct columns.
2. Figure the percentage of growth for each student at the conclusion of this unit.
3. Total the columns at the bottom to show the number of students who met the criteria as stated in the respective Performance Objectives.
4. Transfer these totals to Evaluation Tabulation Form A.

Evaluation Sheet #	1			2			3		
P.O. # / Student Names	#3 Pre	#3 Post	% of Growth	#1 Pre	#1 Post	% of Growth	#2 Pre	#2 Post	% of Growth
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									

Evaluation Tabulation Form B
(Continued)
"Airline Workers"

Evaluation Sheet #	1			2			3		
P.O. # / Student Names	#3 Pre	#3 Post	% of Growth	#1 Pre	#1 Post	% of Growth	#2 Pre	#2 Post	% of Growth
17.									
18.									
19.									
20.									
21.									
22.									
23.									
24.									
25.									
26.									
27.									
28.									
29.									
30.									
TOTAL									

Evaluation Sheet #1

Name _____

Date _____

Here is a list of duties performed by airline workers. Write the correct letter in each blank to show which worker performs the job described.

_____ 1. Flies an airplane.

_____ 2. Gives the pilots information about weather conditions.

_____ 3. Sells tickets and makes reservations for people.

_____ 4. Repairs and installs aircraft parts.

_____ 5. Checks aircrafts before they take off to make certain they are in working order.

_____ 6. Takes over the controls when the pilot is not able to fly the plane.

_____ 7. Controls aircrafts flying around an airport and answers radio calls from arriving and departing aircrafts.

_____ 8. Prepares and approves flight plans.

_____ 9. Makes passengers comfortable during a flight.

_____10. Sends and receives messages between the station and the aircraft.

A. Airline Radio Operator
B. Airline Reservationist
C. Airplane Dispatcher
D. Airplane Mechanic
E. Air Traffic Controller
F. Co-pilot
G. Flight Attendant
H. Flight Engineer
I. Meteorologist
J. Pilot

Evaluation Sheet #2

Name_____

Date_____

Underline those contributions made to society by the airlines and its workers.

1. Helps supply stores with perishable products such as flowers, fruit, or fish.

2. Helps the government collect taxes.

3. Helps rescue people in many types of emergencies.

4. Manufactures model airplanes.

5. Helps people quickly get where they are going.

6. Helps protect our country.

7. Operates telephone services to other countries.

8. Repairs refrigerators and stoves.

9. Helps farmers get their cattle to market.

10. Helps transport mail.

Evaluation Sheet #3

Name _____

Date _____

Underline the one skill listed after each of the workers that would be the most valuable to that worker.

1. A flight attendant must have the ability to:
   a. speak clearly
   b. type well
   c. spell well

2. A ticket agent must have the ability to:
   a. draw well
   b. read well
   c. measure correctly

3. A meteorologist must have the ability to:
   a. speak clearly
   b. read maps
   c. read a parking meter

4. A flight engineer must have the ability to:
   a. design engine parts
   b. run very fast
   c. keep accurate records

5. A flight dispatcher must have the ability to:
   a. tell time correctly
   b. type well
   c. fly a plane

Answers for Evaluation Sheet #1-3

Evaluation Sheet #1

1. J
2. I
3. B
4. D
5. H
6. F
7. E
8. C
9. G
10. A

Evaluation Sheet #2

1
3
5
6
10

Evaluation Sheet #3

1. A
2. B
3. B
4. C
5. A

I. Discuss the age old dream of man being able to fly.

A. Let the students relate how they pretended to fly, dreamed of flying, or tried to fly using an umbrella or some other contraption.

B. Ask the students to name things that fly; i.e., birds, kites, balloons, gliders, and airplanes.

II. Help the students understand how airplanes work.

A. Allow them to observe birds in flight. (Note that they will be using the science skills of observing, drawing conclusions, and comparing.)

1. Have them make lists of everything they observed about those birds.

2. Compile a list on the board.

3. Have them study the list and come to some conclusions about flying.

B. Have the students compare a bird's flight to that of an airplane. (See Reference Sheet #1)

III. Let the students begin a folder for this unit. Preserve the folders by keeping them in a group.

IV. Choose from these optional related activities:

A. Stress social studies skills.

1. Show a filmstrip or pictures, and discuss the sequential order of aircraft inventions. Include the balloon, the glider, the prop plane, the helicopter, and the jet. Have the students indicate their awareness by doing the following activities.

a. Let them put pictures of aircraft in the correct sequence of invention.

b. Have them draw their own pictures in proper sequence.

c. Display their work on a bulletin board entitled, "Flight Through Time".

Resources & Materials	Notes
B. Reference Sheet #1	
IV.	
A. Charts: Travel by Air	

2. Make the students aware of the development of aviation by doing the following activities:

   a. Let the students use Activity Sheet #1 to give an oral or written report on a famous person in aviation. Display the written reports on a bulletin board.

   b. Read about famous events and where they took place. Let the students take turns locating these places on a wall map. (See Activity Sheet #2, answers on Reference Sheet #10a)

   c. Have the students make a bulletin board map showing where the famous events took place. (See Reference Sheet #3)

B. Stress language arts skills.

   1. Have the students study poems about aviation.

      a. Read the poem on Activity Sheet #3 with the students. Have them draw a picture on the activity sheet to put into their folders.

      b. Have the students make-up and illustrate their own poems about flying.

   2. Have the students add the vocabulary words on Reference Sheet #2 to their spelling lists. Put these words on flash cards to use throughout the unit.

C. Stress science skills by showing the students how the wind holds up a wing. Do the experiment on Activity Sheets #4a and #4b.

Resources & Materials	Notes
a. Activity Sheet #1 b. Activity Sheet #2 Reference Sheet #10a c. Reference Sheet #3 a. Activity Sheet #3 2. Reference Sheet #2 c. Activity Sheets #4a & #4b Fan, tagboard, paper, stapler, tape or glue, string, yard sticks	

Capsule #2
Workers

I. Introduce the workers by doing the following activities:

A. Show a film or filmstrip. Have the students look for all the workers they can find. List those workers on the board. Mention the workers on Reference Sheet #4. Note their main duties.

B. Have the students pretend they are going on an airplane flight. Let them answer the following questions:

1. Ask who makes out their ticket (airline reservationist).

2. Ask how the luggage gets on the plane (baggage clerk).

3. Inquire who greets the passengers on the plane and makes them comfortable (flight attendant).

4. Discuss who is in the cockpit flying the plane (pilot and co-pilot).

5. Ask who checks all the equipment in the engines before the take-off (flight engineer).

6. Inquire from whom the pilot finds out what the weather will be before taking off (meteorologist).

7. Ask who will take care of anything on the plane that needs fixing (maintenance crew).

8. Explain that the pilot must go over the flight plans with someone in the airport before taking off. Ask with whom the pilot plans the flight (airplane dispatcher).

9. Ask who lets the pilot know when and where to take off and to land (air traffic controller).

10. Ask whom the pilot can call if the plane gets into trouble or the crew needs more information during the flight (ground radio operator).

C. Give the students copies of Activity Sheets #5a, 5b, 5c, 5d, and 5e. Discuss the workers and the characteristics of their jobs. (See Reference Sheet #10a for the answers)

II. Stress the contributions made to society by the airline industry.

Resources & Materials	Notes
A. Reference Sheet #4 Films The Other Passenger FA Flight to Grandmothers FSP-2 Available free from: FAA Film Library, AC-445 P.O. Box 25082 Oklahoma City, OH 73125 *The Busy Airport F-125 Coronet Filmstrips Airport Workers Air Safety IFC - Airport Series Slides Airport Workers SG-215 SVE 1345 Diversey Parkway Chicago, IL 60614 C. Activity Sheets #5a, 5b, 5c, 5d, and 5e Reference Sheet #10a	

A. Discuss the effects the airlines have on society.

1. Explain the negative effects; i.e., pollution, fuel consumption, etc.

2. Stress the positive effects; i.e., faster transportation, faster mail service, etc.

B. Give the students Activity Sheet #6. Discuss the contributions made by airline workers and other aviational workers. (See Reference Sheet #10a for the answers)

C. Start a chart of the contributions made. Keep it on display, and add to it throughout the unit. Be sure to stress the correct items on Evaluation Sheet #2.

III. Choose from these optional related activities.

A. Stress language art skills by playing the following games with the students.

1. Hand out job title cards to one group of students. Hand out job responsibility cards to another group of students. Have them match up the cards on a given signal.

2. Have the students play "What's My Line" with aviation jobs. Let a student come to the front and "sign in". Have the class ask questions which may be answered "yes" or "no". Let the student reveal his/her job after he/she gives ten negative answers.

B. Have the students expand their vocabulary by doing the following activities.

1. Let the students work a crossword puzzle with airline workers' titles (Activity Sheet #7). (See Reference Sheet #5 for the answers)

2. Have the students do a word search on Activity Sheet #8. (See Reference Sheet #6 for the answers)

Resources & Materials	Notes
B. Activity Sheet #6 Reference Sheet #10a	
C. Evaluation Sheet #2	
III.	
A.	
1. Job title cards	
2. Job description cards	
B.	
1. Activity Sheet #7 Reference Sheet #5	
2. Activity Sheet #8 Reference Sheet #6	

Capsule #3
Meteorologist

I. Show a filmstrip, or read a book about the relationship of the meteorologist's job to aviation. Discuss the following questions:

A. Ask what meteorologists do. (Explain that they check weather instruments and predict what the weather will be like.)

B. Determine what tools the meteorologists use. (Say that they use a thermometer, radar equipment, a balloon, and a wind sock.)

C. Ask where the meteorologist work. (Explain that they work at the airport or in a special building.

D. Decide who depends on meteorologists for aviation. (Say the pilot and the flight dispatcher.)

E. Ask why a pilot needs weather information.

II. Choose from these optional related activities.

A. Let the students do these science activities.

1. Give the students experience in using symbols to depict words.

a. Discuss the weather symbols, and place them on a bulletin board so the students can refer to them. (See Reference Sheet #7) Use Activity Sheet #9. Have the students call the local weather bureau at a designated time to confirm the prediction and to get the temperature. Let them report this information to the class. Have them keep a record of their correct predictions and incorrect predictions by using bar graphs (Activity Sheet #10).

b. Let the students make a class weather calendar on a bulletin board. Have a "Weatherman" or "Weatherwoman" from the class place weather symbols on it. Check the weather daily with the predictions from the Old Farmers' Almanac.

c. Have the students keep their own daily calendars. (See Activity Sheet #11)

d. Have the students answer the questions on Activity Sheet #12. (See Reference Sheet #10a for the answers.)

2. Make the students aware of the tools used by a meteorologist.

a. Let them do Activity Sheet #13 after viewing a filmstrip or researching in a book. (See Reference Sheet #10a for the answers.)

Resources & Materials	Notes
I. Movie *How Weather is Forecast F-345 - Coronet Books Ask the Weatherman, Parker What is Weather?, Syrocki What Will the Weather Be?, Barr Weather All Around, Pine	
II	
a. Activity Sheet #9 Activity Sheet #10 Reference Sheet #7	
b. Old Farmers' Almanac	
c. Activity Sheet #11	
d. Activity Sheet #12 Reference Sheet #10a	
a. Activity Sheet #13	

b. Make a bulletin board depicting the tools of a meteorologist. Include how and why these tools are used: the wind sock, the hygrometer, the anemometer, the barometer, the thermometer, the balloon, the radar, and the rain gauge.

c. Have the students fold a piece of construction paper in four parts. Let them label each part with the name of a meteorologist's tool and draw a picture of that tool. Have them include the thermometer, the wind sock, the barometer, and the balloon.

d. Let the students make a barometer. (See Reference Sheet #8)

e. Have the students make a wind vane and use it to record the wind direction.

1) Let them insert a 6-8" feather in one end of a straw and glue it lightly if necessary.

2) Have them find the balance point by holding the straw on an extended finger so that it will not tip. Let them insert a pin and stick the pin into an eraser.

3) Have the students observe that the vane will move with the wind and will always point in the direction from which the wind is blowing.

4) Let them bind the pencil to a post outdoors where the vane can swing freely.

3. Demonstrate what rain is by doing the "MAKING RAIN" experiment on Reference Sheet #9.

4. Have the students show how a cloud is formed by doing the "MAKING A CLOUD" experiment on Reference Sheet #9.

5. Have the students study cirrus, stratus, nimbus, and cumulus cloud formations. (See Activity Sheet #14)

a. Let the students make cloud formations from cotton to add to their folders.

b. Make a bulletin board of cloud formations to use for a class reference when studying unusual clouds.

B. Stress language skills.

1. Have the students write, in cursive, the poem on Activity Sheet #15. Let them draw a picture to illustrate it.

2. Have the students work a crossword puzzle relating to weather words on Activity Sheet #16. (See Reference Sheet #10a for the answers.)

Resources & Materials	Notes
c. Construction paper	
d. Reference Sheet #8	
e.	
1) 6" - 8" feather Straw Glue Pin Pencil	
3. Reference Sheet #9	
4. Reference Sheet #9 Weather Map	
5. Activity Sheet #14	
1. Activity Sheet #15	
2. Activity Sheet #16	

Capsule #4
Reservationist and Baggage Checker

I. Discuss the airline reservationist and the baggage checker. Refresh the students' memories by reviewing the items discussed in Capsule #2. Ask the following questions: (See Reference Sheet #11)

A. Ask what are the duties of the reservationist and the baggage checker.

B. Determine in what section of the airport they work.

C. Ask what skills they need to perform their jobs.

D. Ask if they wear special clothing.

II. Do the following activities to familiarize the students with the basic skills needed by these workers:

A. Have the students use carbon paper to complete the sample tickets and baggage claims on Activity Sheets #17a and #17b. Stress the importance of capitalization, spelling, and accuracy in copying. (See Reference Sheet #12 for bulletin board ideas)

B. Let the students write tickets or baggage claims for their neighbors, and have their neighbors look for any mistakes.

C. Have the students work the math problems on Activity Sheets #18a and #18b. (See Reference Sheet #10a for the answers)

III. Choose from these optional related activities:

A. Let the students make hats to wear while studying these two occupations.

1. Give the students two (2) strips of paper to make a headboard.

2. Let them trace an enlarged version of the hat on construction paper and cut it out. (See Reference Sheet #13)

3. Have them cut a circle and write the name of the airlines in the middle. Let them glue it to the center of the hat.

4. Have them use a black felt tip marker or a crayon to color in the brim of the hat or just the hatband.

B. Stress language skills by having the students add these words to their vocaublary lists: destination, flight, baggage, reservations, arrival, and tickets.

Resources & Materials	Notes
I. Reference Sheet #11	
II.	
A. Activity Sheets #17a and #17b	
C. Activity Sheets #18a and #18b Reference Sheet #10a	
III.	
A.	
1. Two strips of paper 2"x9"	
2. Reference Sheet #13	
3. Construction paper	
4. Felt tip marker	

Capsule #5
Maintenance Crew

I. Discuss the importance of the aircraft mechanic.

A. Explain that only mechanics with airframe and power plant (A & P) licenses may work on aircrafts.

B. Say that they are responsible for the mechanical aspects of the plane.

C. Stress that their work contributes greatly to the safety of the passengers and the crew.

D. Explain that they inspect, service, repair, and overhaul aircraft. Say that they work either as line maintenance mechanics doing emergency repairs and servicing at the airport or as overhaul mechanics performing major repairs and periodic inspections at the airlines main overhaul base.

II. Discuss the different jobs of the mechanics.

A. Introduce the line maintenance mechanics.

1. Say that they must be able to make repairs on all parts of the plane.

2. Explain that they make emergency and other necessary repairs after the planes land and before take off.

3. Stress that they check the plane's oil and brakes and inspect it for cuts or dents in the surface and tires.

4. Explain that they test the operation of the radio, the radar, and the light equipment.

5. Say that they change oil, clean the spark plugs, and check the hydraulic and oxygen systems.

B. Introduce the aircraft engine mechanic.

1. Stress that they inspect, service, repair, and overhaul different parts of the plane.

2. Discuss their working conditions.

a. Say that some work in hangers which may be heated and well lighted.

b. Say that others work outdoors in all types of weather.

Resources & Materials	Notes

III. Choose from these optional related activities:

A. Stress the tools used by a mechanic.

1. Say that a mechanic knows the parts of an airplane. Have the students learn the airplane's parts by doing one or more of the following activities:

a. Let the students make a bulletin board illustrating the parts of an airplane. (See Reference Sheet #14)

b. Have the students draw an airplane or use Activity Sheet #19 and label the parts. (See Reference Sheet #14 for the answers)

c. Let the students make a model airplane and label the parts. (See Reference Sheet #14)

2. Have the students make a bulletin board to acquaint them with the tools of a mechanic. (See Reference Sheet #15)

B. Stress language skills.

1. Add the following words to the students' vocabulary lists:

mechanic	bolts
hanger	wrench
screw driver	repair

2. Let the students make name tags to wear while they study the mechanic's job.

C. Stress science skills by demonstrating how propellers work. Let a group of students use Reference Sheet #16.

Resources & Materials	Notes
III.	
a. Reference Sheet #14	
b. Activity Sheet #19 Reference Sheet #14	
c. Reference Sheet #14	
2. Reference Sheet #15	
C. Reference Sheet #16	

Capsule #6
Air Traffic Controller, Ground Radio Operator, Flight Dispatcher

I. Show a filmstrip or read about the work of an air traffic controller. Have the students do the following activities related to the air traffic controller:

A. Stress the tension and responsibility of this job. Ask the students how they do their class work in relation to tension. Ask if they try to get their work done accurately and on time. Ask how they feel when they're tired.

B. Give the students situations that must be handled by a controller, and have them break into discussion groups to find the answers. Have them report back for general discussion. (See Reference Sheet #17)

II. Tell the students that a ground radio operator relays information about weather conditions and other flight changes to the pilots.

A. Stress that speaking clearly is important to a radio operator's job. Have the students read a mock radio operator's message into a tape recorder and then listen to themselves to check for clarity. (See Reference Sheet #18)

B. Explain that radio operators must know the capabilities of the various aircraft so if a problem arises, they can give the pilot instructions on where to land. Have the students draw and label different types of planes; i.e., twin engine, 747, helicopter, and piper cub.

III. Discuss that the flight dispatcher helps the pilot make flight plans after gathering weather information from the meteorologist.

A. Have the students locate eight (8) major cities in the U.S. on Activity Sheet #20. (See Reference Sheet #10d for the correct answers)

B. Have the students draw a flight plan for a large plane and for a small plane to leave and to arrive at the same points. (Use a large map.)

IV. Choose from these optional related activities:

A. Stress language skills by having the students read a poem about a plane taking off. (See Activity Sheet #21)

B. Give the students practice in map interpretation by doing Activity Sheet #22. (See Reference Sheet #10b for the answers)

C. Have the students learn the International Phonetic Alphabet which is used by all radio operators. (See Reference Sheet #19)

Resources & Materials	Notes
B. Reference Sheet #17	
II.	
A. Reference Sheet #18	
III.	
A. Activity Sheet #20 Reference Sheet #10d	
IV.	
A. Activity Sheet #21	
B. Activity Sheet #22 Reference Sheet #10b	
C. Reference Sheet #19	

I. Introduce the duties of flight attendants by showing a film or filmstrip or by having a flight attendant visit the room.

II. Emphasize that the daily care of the hair, nails, teeth, and body is especially important to someone who meets the public every day. Do either A or B and definitely C below.

A. Have a resource person like a beautician, a model, or a manicurist speak to the students. Have the resource person demonstrate the proper care of the above mentioned items.

B. Set up a mock charm school with stations for care of the hair, the nails, the teeth, and the posture.

C. Present basic care techniques, and have the students check each other for cleanliness in the a.m. and the p.m. Give points or stars for every clean check. (See Reference Sheet #20)

III. Make the students aware that having a good memory is important to flight attendants. Play the following game:

A. Let the students cut out or make pictures of glasses of milk and cups of coffee and tea.

B. Have the students take turns going down the row asking the other students what they prefer - coffee, tea, or milk.

C. Let them go to the front of the room. Have them place the correct number of items on a tray and then try to serve what their customers requested.

D. Stress that flight attendants must be understood when they talk to the passengers.

IV. Have the students practice clear speaking by reading a paragraph into a tape recorder. (See Reference Sheet #21)

V. Choose from these <u>optional</u> related activities.

A. Have the students learn foreign phrases after discussing that planes fly to foreign countries. Make flash cards, posters, or duplicated copies for the students to study. (Reference Sheet #22)

B. Explain that flight attendants are often asked by passengers what's happening to their ears when they take off and land. Have the students do research and report to the class about why their ears feel pressure.

Resources & Materials	Notes
C. Reference Sheet #20	
IV. Reference Sheet #21	
A. Reference Sheet #22	

Capsule #8
Pilot, Co-Pilot, Flight Engineer

I. Introduce the students to the pilot and co-pilot by reading a story, by showing a filmstrip, or by asking a pilot to come in as a role-model. (See Reference Sheet #23)

A. Discuss the responsibilities of a pilot.

1. Explain that the pilot inspects the plane.

2. Say that the pilot makes sure the plane is full of gas.

3. Stress that the pilot checks the weather along the flight plan.

4. Explain that the pilot makes the flight plan.

5. Say that the pilot supervises the work of the crew.

6. Stress that the pilot flies safely.

B. Discuss the qualifications of the pilot and co-pilot by asking the following questions:

1. Ask why good eye sight is important to pilots. (Explain that they must read the instruments and the flight plans without eye strain.)

2. Ask why pilots must be in good physical condition and must take physicals every six months if they fly commercially. (Explain that flying a plane is physically trying and that pilots must not get ill when flying.)

3. Ask why pilots have to understand weather maps. (Explain that they must know the weather conditions through which they will fly.)

4. Ask what math skills pilots need and why. (Say that they need basic skills and higher math to project the capabilities of the plane, the fuel needed, the speed needed, the distances traveled, etc.)

5. Ask why pilots or co-pilots have to know how to read a map. (Explain that they must know where they are going.)

II. Give the students an opportunity to experience some of the qualifying tests a pilot and co-pilot might take.

A. Have the students take an eye test by borrowing a chart from the school nurse or by having him/her administer the test.

Resources & Materials	Notes
I. Film The Other Passenger FA-601 FAA Film Library, AC-445 Aeronautical Center P.O. Box 25082 Oklahoma City, OK 73125 Reference Sheet #23	
II. A. Eye Chart	

B. Have the students take a physical fitness test administered by the physical education teacher.

III. Show a filmstrip or movie, or read a story about the responsibilities of flight engineers. (Say that they check their own instrument panels, start up the engines, monitor the engines and the speed, and take the planes off the ground.)

IV. Choose from these optional related activities:

A. Stress science skills.

1. Have the students make paper airplanes and fly them. Have them fold the plane and make ailerons and elevators to see how such equipment pushed up or down changes the plane's flight.

2. Build an airplane in the classroom. Let the students help design and build it. Put a control panel in the cockpit area so the students can role-play the occupations on a plane.

B. Stress map skills.

1. Have the students identify some common map symbols by doing Activity Sheet #23. (See Reference Sheet #10b for the answers.)

2. Display an aeronautical chart which also shows a legend of the symbols.

3. Have the students study a map of an airport and answer the questions concerning the map on Activity Sheet #24. (See Reference Sheet #24 for the answers.)

Resources & Materials	Notes
B. 1. Activity Sheet #23 Reference Sheet #10b 3. Activity Sheet #24 Reference Sheet #24	

Capsule #9
Setting-up An Airline Area

I. Let the students visit an airport before role-playing the following airport workers: (See Reference Sheet #25)

A. Select two airline reservationists.

1. Set up an area with some signs of airlines.

2. Have the reservationist make out tickets for the passengers as shown on Activity Sheet #17.

B. Appoint two baggage checkers.

1. Have the students bring in suitcases from home.

2. Have the checker weigh the baggage.

3. Have the checker make out a baggage claim ticket.

C. Find a maintenance crew of four.

1. Let them build an airplane.

2. Have them check over the plane to make sure everything is safe before the flight time.

D. Select one meteorologist.

1. Have him/her check the daily weather forecast.

2. Let him/her make out a weather map using the symbols.

E. Appoint one airline dispatcher.

1. Have him/her find out what the weather will be where the pilot is going.

2. Let him/her help make out the flight plan with the pilot.

F. Choose one pilot.

1. Have him/ner use Activitv Sheet #25 and work with the dispatcher, the meteorologist, and the co-pilot to make out a flight plan.

2. Let him/her sit at the controls of the plane and check it out before the "takeoff".

Resources & Materials	Notes
I. Reference Sheet #25 2. Activity Sheet #17 F. 1. Activity Sheet #25	

3. Have him/her use the walkie-talkie to talk to the air traffic controller for takeoff instructions and to the ground radio operator for possible in-flight changes.

4. Let him/her wear pilot wings.

G. Choose one co-pilot.

1. Have him/her sit with the pilot in the cockpit.

2. Let him/her talk on the walkie-talkie whe. the pilot's not working.

3. Let him/her wear pilot wings.

H. Select one flight engineer.

1. Have him/her sit up in the cockpit area.

2. Let him/her pretend to start up the engines.

I. Choose one air traffic controller.

1. Have him/her sit in the area designated as the tower.

2. Let him/her talk over the walkie-talkie to the pilot and give permission for the "takeoff".

J. Appoint one ground radio operator.

1. Let him/her talk over the walkie-talkie to the pilot during the flight.

2. Let him/her talk over the walkie-talkie to the co-pilot during the flight.

K. Choose one or two flight attendant.

1. Let them stand at the door and greet the passengers.

2. Have them make sure the passengers are comfortable during the flight.

Resources & Materials	Notes

Reference Sheet #1

1. Explain that the legs on a bird are like the landing gear on a plane--- they fold up when in flight.

2. Say that the tail is used as a rudder to change direction during flight and as a brake or elevator on a plane.

3. Explain that the wings not only are used to propel the bird through the air, but as a parachute when landing.

4. Say that wings on birds vary in size and use.

   a. Explain that soaring birds such as condors have wide spread feathers which act as balancers. Say that these would be similar to ailerons on a plane.

   b. Explain that short, broad wings like a pheasant's are used for quick take off and steep climbing. Note that carrier-based planes have the same wing build.

   c. Explain that broad wings which taper at the ends such as the swallow's are used for maneuvering. Say that these are the type of wings found on a fighter plane.

   d. Explain that long narrow wings such as an albatross' are used for gliding many hours at sea. Note that glider planes have this type of wing.

*See the World Book Encyclopedia book B: "Birds and How They Fly" for further information.

Reference Sheet #2
Vocabulary Words

Capsule #1	Capsule #2	Capsule #3
aviation	cockpit	windsock
balloon	pollution	hygrometer
glider	fuel	anemometer
aircraft	consumption	barometer
dirigible		thermometer
kite		balloon
airplane		radar
bi-plane		rain gauge
jet		
flying		
blimp		

Capsule #4	Capsule #5	Capsule #6
destination	mechanic	dispatch
arrival	hanger	control
reservations	screwdriver	phonetic alphabet
baggage	bolts	
flight	wrench	
tickets	repair	

Capsule #7	Capsule #8
flight	engineer
attendant	

Leonardo da Vinci (Italy) -- 1490 made drawings of a parachute, a helicopter, a propeller, and flying machines with wings.

de Rozier (France) -- 1783 made the first lighter-than-air ascent in a hot-air balloon.

William S. Henson (Indiana) -- 1842 - Flew the first steam driven model airplane

Otto Lilienthal (Germany) -- 1891 - 1896 made the first successful glider flights.

Wright Bros. (Kitty Hawk, N.C.) -- 1903 made the first manned helicopter flights.

R.E. Byrd (USA) --1926 made the first flight over the North Pole.

Charles A. Lindbergh (USA) -- 1927 made the first nonstop solo flight across the Atlantic Ocean from New York to Paris, France.

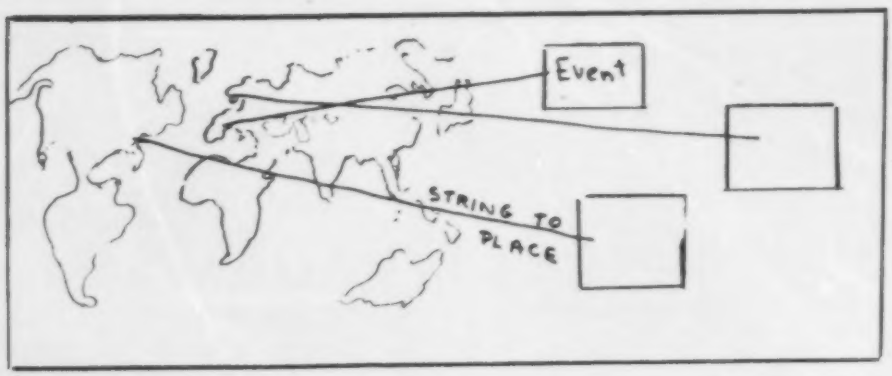
Fritz von Apel (Germany) -- 1929 made the first flight of a rocket plane.

Amelia Earhart (USA) -- 1932 was the first woman to fly solo from Canada to Ireland.

Wiley Post (USA) - 1933 made the first solo flight around the world.

Robert M. Stanley (USA) -- 1942 flew the first jet plane built in the U.S. at Muroc Dry Lake, Calif.

Jacqueline Cochran (California) -- 1953 was the first woman to fly faster than sound.



Reference Sheet #4

Pilot - pilots an airplane; checks the instrument panel to see that everything is operating correctly; makes decisions concerning emergencies; and logs information such as time in flight, altitude, and fuel consumption.

Co-pilot - helps the pilot fly the plane.

Flight Engineer - makes sure all devices of an airplane are in working order; starts the engines on a plane; and makes preflight, inflight, and postflight inspections, adjustments, and minor repairs to insure safe and efficient operation of the aircraft.

Flight Attendant - makes people comfortable on their flight, instructs them on safety measures, serves food to the passengers, and keeps a record of all passengers.

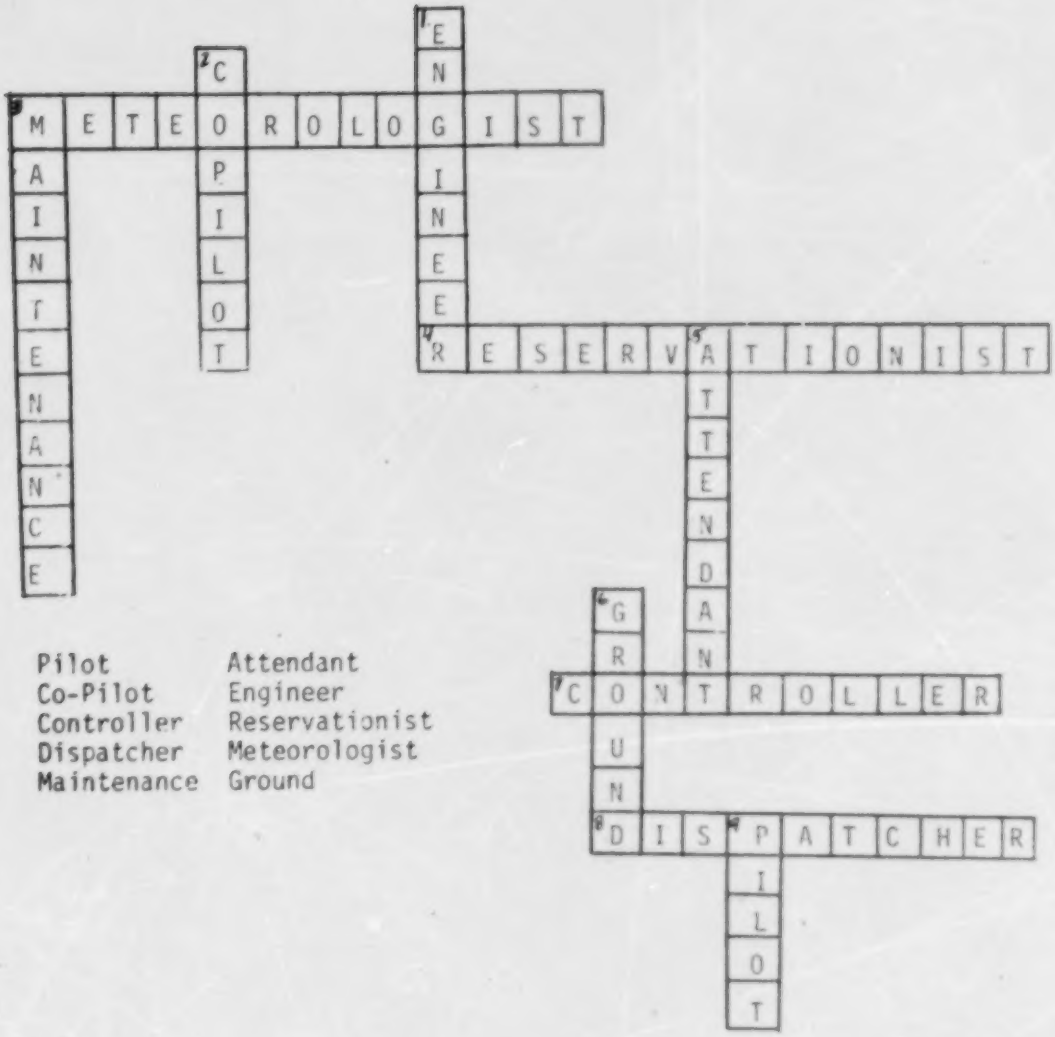
Airline Reservationist - sells tickets and makes reservations for the passengers.

Ground Radio Operator - radios important messages about the weather conditions and other flight information to the pilot.

Air Traffic Controller - controls air traffic on and within the vicinty of the airport according to established policies and procedures.

Maintenance Crew - repairs and installs aircraft parts.

Airline Dispatcher - determines flight times of airplanes; transmits information to flight operations and air traffic command centers; and evaluates data such as ramp delays, weather conditions, flight plans, and en route stopovers to determine arrival and departure times for each flight. He or she uses such aids as a slide rule, weather cnarts, and computer.



Pilot	Attendant
Co-Pilot	Engineer
Controller	Reservationist
Dispatcher	Meteorologist
Maintenance	Ground

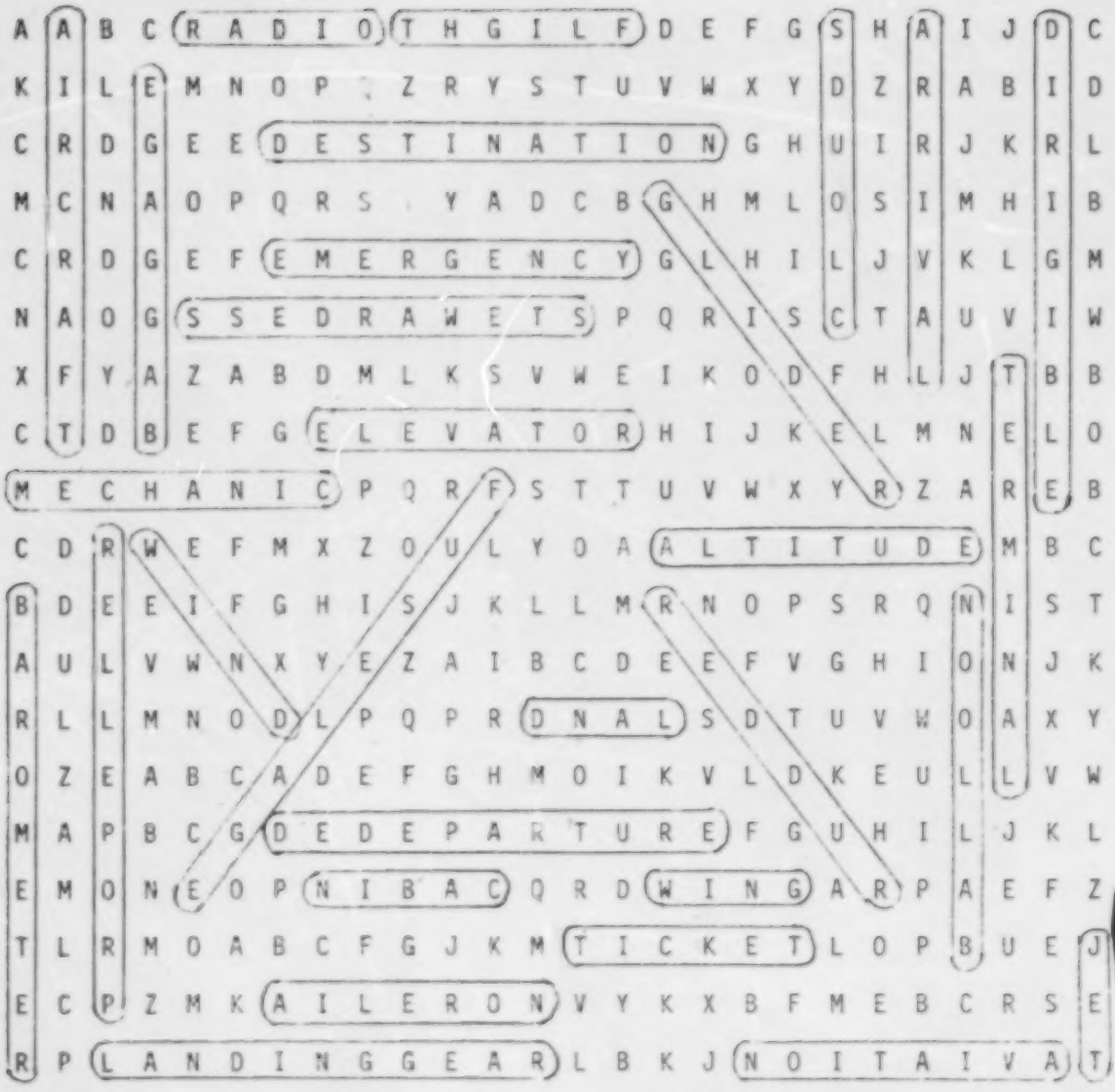
ACROSS

3. A _____ makes a report on weather conditions.
4. An airline _____ sells tickets to passengers.
7. An air traffic _____ gives information to pilots to keep them from crashing into each other.
8. An airplane _____ helps pilots make flight plans.

DOWN

1. A flight _____ inspects an airplane prior to takeoff.
2. A _____ helps the pilot fly the plane.
3. The ____ crew repairs and installs aircraft parts.
5. The flight ____ makes people comfortable on their flight.
6. The _____ radio operator sends information about flight conditions to the pilot.
9. The ____ flies the airplane.

Reference Sheet #6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C R D G E F E M E R G E N C Y G L H I L J V K L G M
N A O G S S E D R A W E T S P Q R I S C T A U V I W
X F Y A Z A B D M L K S V W E I K O D F H L J T B B
C T D B E F G E L E V A T O R H I J K E L M N E L O
M E C H A N I C P Q R F S T T U V W X Y R Z A R E B
C D R W E F M X Z O U L Y O A A L T I T U D E M B C
B D E E I F G H I S J K L L M R N O P S R Q N I S T
A U L V W N X Y E Z A I B C D E E F V G H I O N J K
R L L M N O D L P Q P R D N A L S D T U V W O A X Y
O Z E A B C A D E F G H M O I K V L D K E U L L V W
M A P B C G D E D E P A R T U R E F G U H I L J K L
E M O N E O P N I B A C Q R D W I N G A R P A E F Z
T L R M O A B C F G J K M T I C K E T L O P B U E J
E C P Z M K A I L E R O N V Y K X B F M E B C R S E
R P L A N D I N G G E A R L B K J N O I T A I V A T

Dirigible
Glider
Aviation
Jet
Balloon
Aircraft
Rudder
Wing
Propeller

Fuselage
Aileron
Elevator
Cabin
Destination
Arrival
Departure
Mechanic
Wind

Radio
Stewardess
Altitude
Baggage
Terminal
Ticket
Barometer
Land
Clouds

Flight
Emergency
Landing Gear

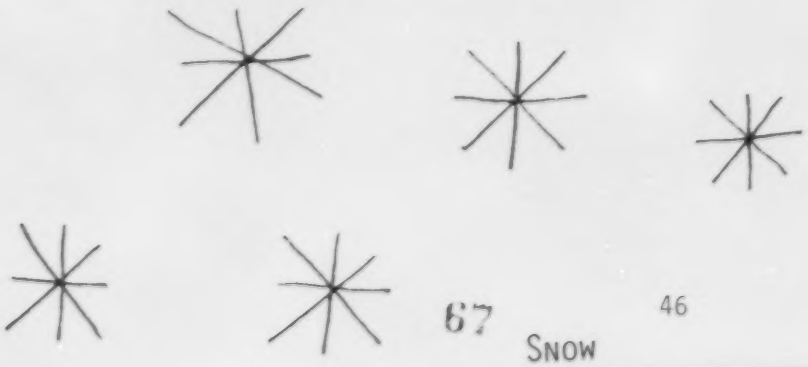
Reference Sheet #7

SUNSHINE

RAIN

CLOUDY

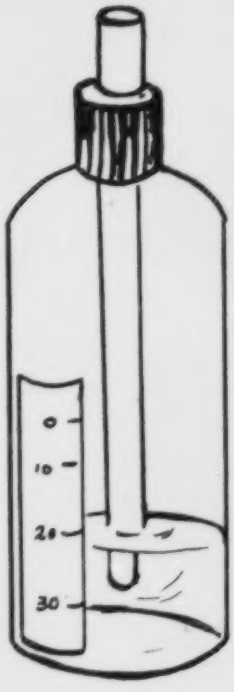
WINDY



SNOW

Use the following for this experiment:

1. Medicine bottle with a dropper cap
2. Small amount of red ink
3. Some paste
4. Some paper cut 3 inches by 1 inch



MAKING A BAROMETER - DO THIS EXPERIMENT

Color a small amount of water by dropping a little red ink into it. Pour the colored water into the bottle to a depth of about a half inch.

Snip off the top of the rubber bulb. Screw the top on tightly. Add a few drops of water through the top until the water in the tube is about an inch above the water in the bottle.

Make a paper scale and glue it on the bottle as shown above. Set the barometer in a part of the room where the temperature remains fairly even. Check the barometer at the same time each day.

DISCUSS A BAROMETER

Explain that air pressure is measured with a barometer. Say that the barometer is an instrument to help forecast weather because it measures the air.

Explain that the bottle barometer is an upsidedown instrument. Show that the air cannot press on the water in the bottle, but the increased air pressure can push the colored water down in the tube. Say that when the water in the tube presses down, the colored water in the bottle will rise a tiny bit. Explain that the students must read the tube, not the water in the bottle, so their barometer is upsidedown.

DO ADDITIONAL ACTIVITIES

Let several pupils bring to school a barometer that is used in their homes. Have one pupil bring a barometer that does not contain a liquid.

MAKING RAIN

Explain that clouds form when water vapor in the air cools, condenses, and changes to tiny drops of liquid water. Say that when these droplets become so heavy and large that the cloud cannot hold them, they fall to the earth. Explain that if they appear as drops of water, they are called rain.

Use the following materials: teakettle, some ice cubes, a pie pan, and some water.

Demonstrate the following: Boil the water in the teakettle. Note that a "cloud" will form just beyond the spout. Explain that the clear area nearest the spout is steam. Hold the pie pan filled with the ice cubes in the "cloud" area. Ask what happens when the water vapor comes in contact with the pan. Discuss why this happens.

MAKING A CLOUD

Explain that clouds form when warm air rising from the ground gets cool. Say that the water vapor in the air then condenses and the droplets form. Explain that these droplets, when close together, form a cloud. Say that if the droplets are light enough so they do not fall to the ground as rain, snow, or so on, they just float along in the sky. Explain that if the droplets condense high above the earth, they are called clouds. If they condense close to the ground, they are called fog.

Use the following materials: milk bottle, some crushed ice, some hot water, a piece of string, and a thin cloth.

Demonstrate the following: Pour the hot water into the milk bottle. Pour out all but one inch of the water when the bottle becomes hot. Stretch the cloth over the mouth of the bottle. Put the crushed ice on this cloth and fasten the cloth and the ice into place. Observe what happens when the warm air meets the cold.

ACTIVITY SHEET #2

A. 5
B. 2
C. 4
D. 1
E. 3

Order of Development

2. Wright Brothers' plane
3. Lindbergh's Spirit of St. Louis
5. Cessna Twin Engine
1. Boeing 747
4. Space Shuttle

ACTIVITY SHEET #5a

Skills: reading
writing
math
observational, and
mechanical

ACTIVITY SHEET #5b

1. Serve meals and drinks
   Fill baby bottles

2. Reading, writing,
   speaking, and observation

ACTIVITY SHEET #5c

They all need to know how to read information, how to write and record information, math skills, observational skills, etc.

ACTIVITY SHEET #6

A. protection
B. rescue
C. crop dusting
D. putting out forest fires

ACTIVITY SHEET #12

1. Kalamazoo and Bay City
2. Coloma, Benton Harbor, and/or St. Joseph
   (accept one or all)
3. Detroit
4. Traverse City
5. Lansing

ACTIVITY SHEET #13

2. atmospheric pressure
3. water-vapor content of the atmosphere
4. rain fall
5. temperature
6. wind direction

ACTIVITY SHEET #16

Across	Down
1. snow	2. water
4. sleet	3. cloud
5. tornado	6. rain
7. lightning	8. hail
	9. ice

ACTIVITY SHEETS #18a and #18b

1. 62
2. 103
3. $110
4. $138
5. 11
6. 20
7. $200
8. $350
9. 44
10. 20

ACTIVITY SHEET #22

1. West
2. Pacific
3. New York
4. Gulf of Mexico
5. Denver
6. Denver

ACTIVITY SHEET #23

1. b
2. a
3. c
4. b

Correct the capitalization in the following baggage claims and tickets. There will be 18 mistakes altogether.

Airlines: north central
Name: Susan brown
To: chicago Flight: #602
From: coloma
Date: February 12, 1975 Claim #410

Airlines: american Airlines
Name: Mr. Dave johnson
To: Chicago Flight: #311
From: benton Harbor
Date: february 2, 1975 Claim #401

Airlines: Eastern
Name: mary Ann White
To: houston Flight: #366
From: chicago
Date: march 13, 1975 Fare: $61.45

Airlines: North Central
Name: dan jackson
To: benton harbor Flight: #033
From: detroit
Date: March 6, 1975 Fare: $67.50

LOCATE THE FOLLOWING CITIES:

San Francisco	Chicago	Boston	Washington D.C.
Miami	New York	Los Angeles	Austin

Airline Reservationist

1. Duties: takes phone reservations,
   answers questions about schedules,
   makes out tickets, and
   weighs baggage

2. Section: works at the ticket counter, or
   in the main headquarters

3. Skills: uses math,
   language,
   spelling, and
   reading

4. Clothing: wears a uniform at the airport

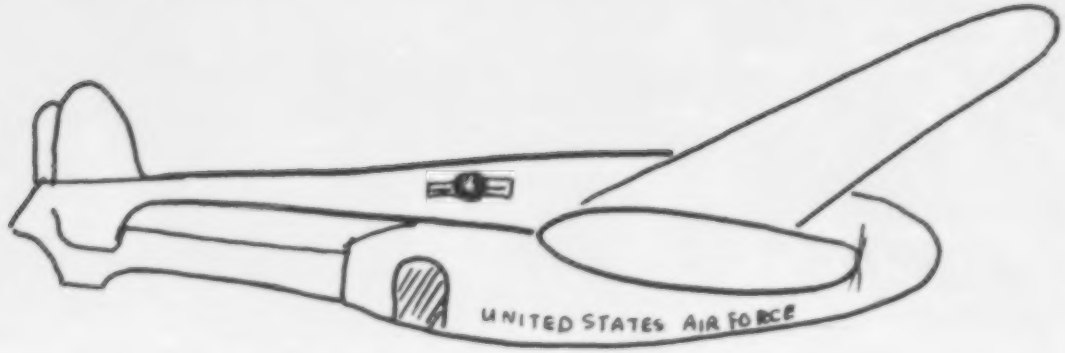
Baggage Checker

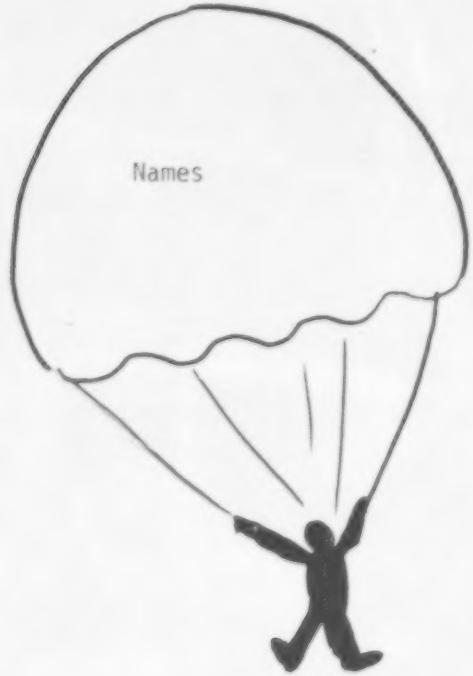
1. Duties: takes care of baggage claims, and
   gets the baggage to and from the airplanes

2. Section: works in the baggage claim area

3. Skills: uses reading

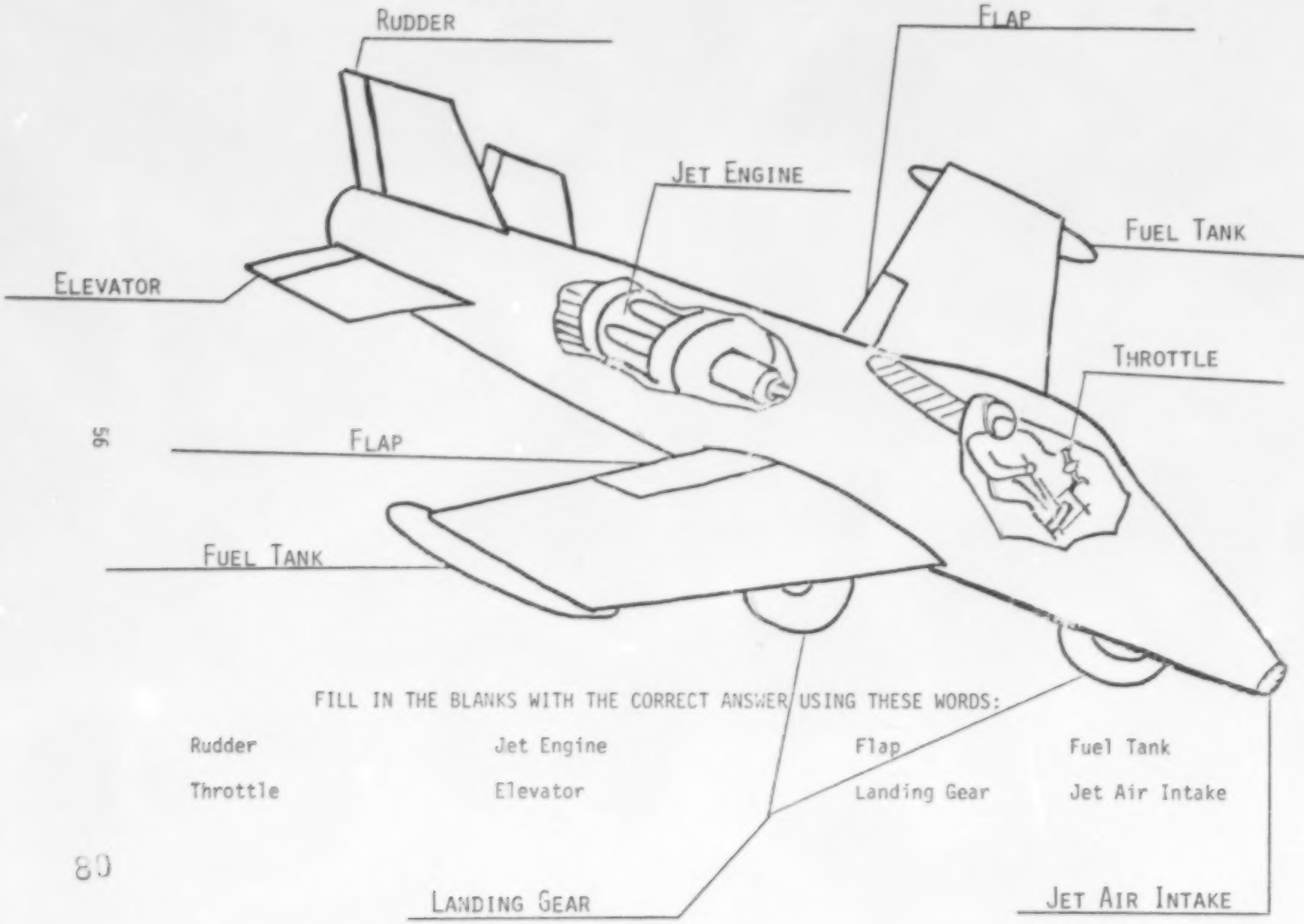
4. Clothing: usually wears a uniform





Reference Sheet #12

FUNLAND AIRLINES
TICKET AGENT



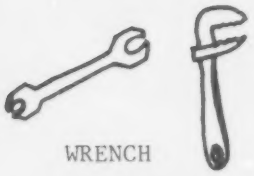
FILL IN THE BLANKS WITH THE CORRECT ANSWER USING THESE WORDS:

Rudder	Jet Engine	Flap	Fuel Tank
Throttle	Elevator	Landing Gear	Jet Air Intake

WIRE CUTTERS

NAILS

HAMMER



WRENCH

NUTS

BOLTS

SCREWDRIVER

SCREWS

Reference Sheet #15

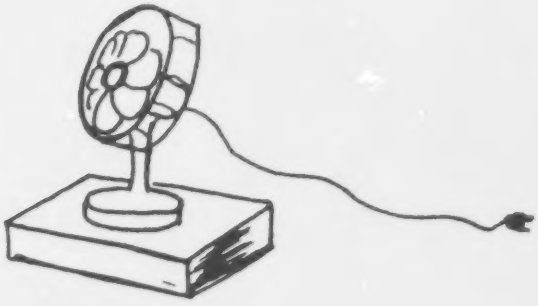
57

1. Use an orange background, yellow letters, or yellow signs with black lettering.
2. Hang or glue on real tools for people to touch.

82

83

Use the following for this experiment: an electric fan, a piece of plywood 12 inches by 8 inches, three round pencils, and an electric outlet.



Demonstrate the following: Put the piece of plywood on three round pencils on a table. Set the plywood as shown in the illustration. Start the fan and observe what happens. Be careful to keep all fingers away from the blades of the fan.

Observe the following: The twist in each blade of the fan. Note that the blades push back on the air as they turn. Observe that as the air is pushed in one direction, the fan is pushed in the other direction.

Explain that an airplane propeller is somewhat like an electric fan. Say that as the propeller turns, it pushes back on the air. Explain that as the propeller pushes the air back, the airplane moves forward.

Reference Sheet #17

1. There's a heavy fog on the ground. The meteorologist says it'll be about an hour before it clears. There are several planes waiting to land. What should the controller tell the pilots? Should they go to another airport, or should they wait and stack up more planes?

2. There's a small plane that's taken off and is circling around the area. The controller doesn't have a flight plan for it and doesn't know where it's going. The small plane doesn't answer the controller's radio. There are several large planes in the area ready to land. What should the controller do?

3. The controller receives a distress call from a small plane close by. Several large jets are scheduled to land right away. What should the controller do?

4. There's been a bad snow storm, and the runways are covered with snow. There are several airplanes waiting to land and takeoff. The meteorologist doesn't know when the snow will let up. What should the controller tell the pilots to do?

DELTA 64, THIS IS GROUND CONTROL. DETROIT REPORTS THAT THEY ARE HAVING HEAVY FOG. YOU WILL HAVE TO GO INTO A HOLDING PATTERN OVER JACKSON. CLIMB TO AN ALTITUDE OF 11,000 FEET AND REMAIN CIRCLING UNTIL FURTHER INSTRUCTIONS FROM THE TOWER AT DETROIT. PLEASE REPEAT THIS MESSAGE BACK.

Reference Sheet #19

Alpha	November
Bravo	Oscar
Charlie	Papa
Delta	Quebec
Echo	Romeo
Foxtrot	Sierra
Golf	Tango
Hotel	Uniform
India	Victor
Juliette	Whiskey
Kilo	X-ray
Lima	Yankee
Miki	Zulu

Reference Sheet #20

Names	Clean Hands	Hair Combed

Reference Sheet #21

Have the students read the following paragraph into a tape recorder.

"GOOD AFTERNOON LADIES AND GENTLEMEN. THIS IS YOUR STEWARDESS (STEWARD) _____ (SAY NAME) ON HOME TOWN AIRLINES FLIGHT #565. WE ARE NOW FLYING AT 8,500 FEET OVER CENTRAL MICH'GAN. OUR ESTIMATED TIME OF ARRIVAL IS 3:15. THE TEMPERATURE IN DETROIT IS 65°. IF THERE IS ANYTHING I CAN DO TO MAKE YOUR FLIGHT MORE COMFORTABLE, PLEASE LET ME KNOW. THANK YOU FOR FLYING HOME TOWN."

Basic German phrases.

1. GOOD MORNING LADIES AND GENTLEMEN
   GUTEN MORGEN MEINE DAMEN AND HERREN
   (GOO-T'N MOHR-G'N MY-NEH DAH-M'N OON T HEH-R'N)

2. GOOD EVENING
   GUTEN ABEND
   (GOO-TN AH-BENT)

3. GOOD-BYE
   AUF WIEDERSEHEN
   (OUF VĒDERSEHN)

4. COFFEE, TEA, MILK
   KAFFEE, TEE, MILCH
   (KAFFEH, TEH, MILKH)

5. PLEASE
   BITTE
   (BIT-TEH)

6. THANK YOU
   DANKE SCH'ON
   (DANH-KEH SHUHN)

7. YOU'RE WELCOME
   BITTE SCH'ON
   (BIT-TEH SHUHN)

Reference Sheet #23
Role-Model

Contact the role-models at least two weeks prior to their visit. Explain what the students expect of them, and give them an idea of what questions the students will be asking. (See below) Be sure to have them bring as many tools as possible and wear their uniforms, if they have any. Follow this contact up with a letter to confirm the date, time, etc. Have the role-models plan to talk about twenty to twenty-five (20-25) minutes and then answer the students' questions. Be certain to tell the role-models that the students want to handle the tools and to try on parts of their uniforms, if possible.

Suggest the following questions to the role-models:

1. Ask, "What is your job?"
2. Say, "Do you like your job?"
3. Ask, "How many hours do you work a day?"
4. Say, "What kind of training have you had?"
5. Ask, "Does anyone check on what you do?"
6. Ask, "What do you like most about your job?"
7. Ask, "What do you like least?"
8. Say, "What tools do you use?"
9. Suggest questions about the model's personal life. (family, hobbies, etc.)
10. Ask, "What are desirable worker characteristics?"

Add more questions to this list for each occupation. Develop the questions with the class prior to the role-models' visit. Let the students write the questions down so that they have something to start with.

Tape-record the role-models' visit for playing at a later time. Take pictures to use when reviewing.

Follow-up their visit by a class discussion.

Send thank-you letters or have the students send them within a day or two after the role-models' visit.

1. Have the students label three hangers: Eastern, American, and Delta.

2. Have the students mark taxi patterns with different colored crayons. Read the following:

   "Delta Flight #401, taxi East on runway #8, turn on runway #65, and taxi to your hanger."

   "Eastern Flight #466, taxi West on runway #8, turn on runway #25, and taxi to your hanger."

3. Let the students use extra sheets during their free time to give directions to their peers. Have one student role-play the ground radio operator and the other the pilot.

Reference Sheet #25
Field Investigation

Call the place the class is planning to visit at least one month in advance. Follow-up this call with a letter confirming all the things discussed and planned.

Discuss with the individual the following things:

1. Tell what you wish to see.
2. Mention what general questions the students will be asking.
3. Say how long they will be there.
4. Tell how many students will come.
5. Ask to which workers the students may talk.
6. Ask what equipment or tools the students may use or see.
7. Find out what kind of "hands on" experiences the students may have.

Obtain the principal's approval before planning the field investigation. Make bus arrangements for the students at least two weeks in advance.

Have two or three parents accompany the students on their trip. Contact them at least two weeks in advance.

Send a letter home to the parents telling where the students are going, when they are going, and if they need anything extra in the way of food, clothing, or money.

Prepare the students before the trip with the questions to ask the workers they will be seeing. Note that each investigation will be different. Suggest to the students that they bring a camera along.

Be sure to remind the building principal on the day of the trip about where the students are going and when they will return. Do the following activities when the students return from their trip:

1. Review what the students observed.
2. Review the interviews with the workers.

Be sure to send a thank-you letter or to have the students write and send one.

Activity Sheet #1

Name_____

Date_____

Name of the person in aviation_____

_____

What did he/she do that made him/her famous in aviation?_____

_____

_____

_____

_____

_____

_____

_____

When did this happen?_____

_____

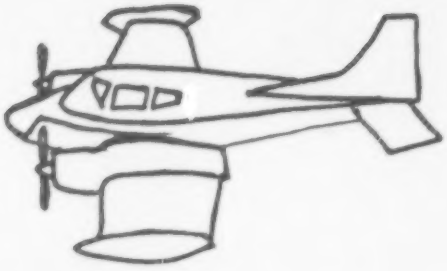
Where did this happen?_____

_____

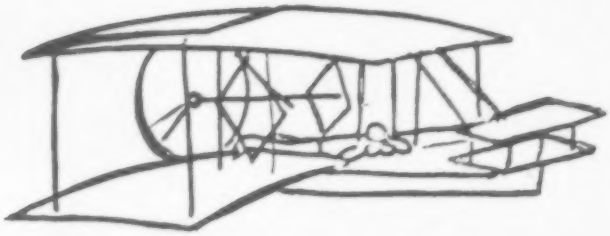
Activity Sheet #2

Name _____

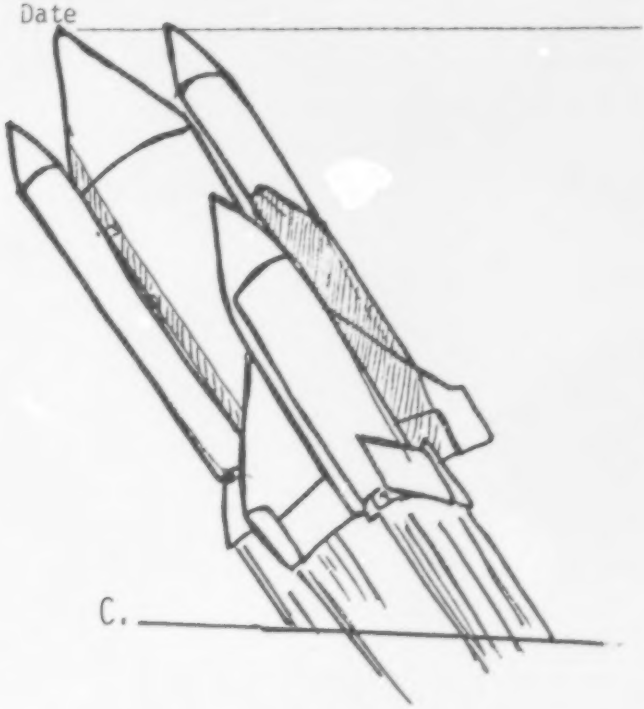
Date _____



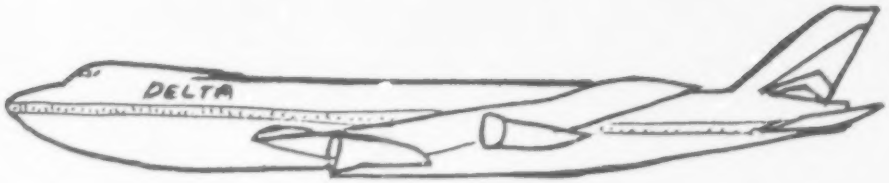
A. _____



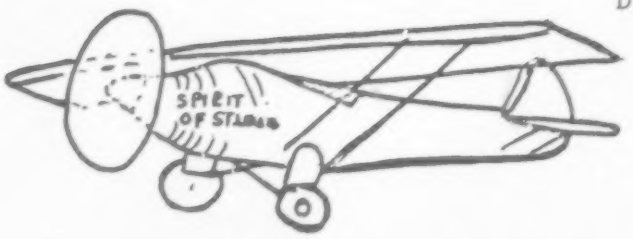
B. _____



C. _____



D. _____



E. _____

Identify each of the aircraft above by writing the correct numerals on the lines below the pictures.

1. Boeing 747
2. Wright Brothers' plane
3. Lindbergh's Spirit of St. Louis
4. Space Shuttle
5. Cessna Twin-Engine

Use reference books to help you identify the sequence in which each of these aircrafts were developed. Show the sequence from earliest to latest by writing the numerals of each aircraft in sequential order.

Activity Sheet #3

Name_____

Date_____

FLYING

SUSPENDED IN AIR
UP SEVEN MILES HIGH,
I'M A BIRD; I'M A JET;
I'M FREE---I FLY!

MY WORLD'S A TOY
SPREAD AT MY FEET;
ITS HOUSES AND CARS
ARE ANTS ON A STREET;

BUT SUSPENDED UP HERE
AT SEVEN MILES HIGH,
I'M ALONE IN SPACE;
I'M FREE---I FLY!

by Charlotte Groff

Activity Sheet #4a

Name_____

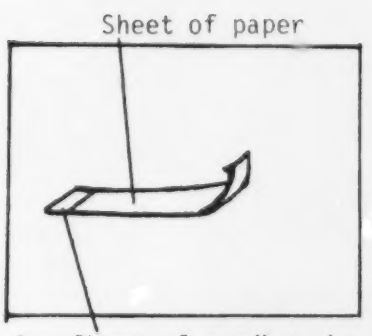
Date_____

WHAT HOLDS AN AIRPLANE UP?

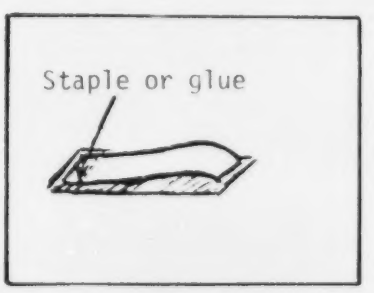
Note that an airplane wing is flat on the bottom and curved on top. Stress that as the plane moves through the air, the air flowing over the tops of the wing moves faster than the air flowing along the bottom. Say that the air flowing over the top of the wing must pass along the straight undersurface. Observe that since a curved line is longer than a straight line between the same two points, the air moving the longer distance must move faster than the air moving the shorter distance; therefore, air moves faster over the upper surface of an airplane wing than over the lower surface. Note that the pressure on the upper side of the wing is less than the pressure on the underside of the wing; therefore, the higher pressure of the air beneath an airplane's wings holds it up.

Use the following materials for this experiment: a piece of tagboard or cardboard, a sheet of paper, a stapler or glue, and some string.

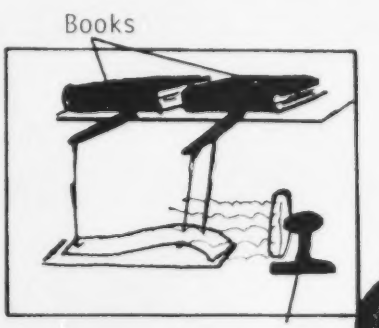
Demonstrate the Procedure: Cut the sheet of paper and a piece of cardboard the same width. Cut the cardboard so that it is about half as long as the paper. Staple or glue the cardboard and the sheet of paper together as shown in illustration 1. Bend the paper back over the cardboard and staple it about one inch from the end of the cardboard. Observe that the upper surface of the paper will be curved and the lower surface will be straight. Note that the paper has the general shape of a section cut from an airplane wing. Observe that the rounded end is the forward end (illustration 2). Suspend the paper by three pieces of string, two passed through the forward end and one passed through the rear part of the folded paper. Attach the strings to sticks, and use books to hold the sticks (illustration 3). Get the experiment put together, and have the students do Activity Sheets #4b, #1, and #2 before turning on the fan. Place an electric fan in front of the "airplane wing" and turn the fan on. Note that the wing will rise slightly as the moving air lowers the pressure on its upper surface. Stress that the air beneath provides the lift.



1. Sheet of cardboard



2.



3. Fan

Activity Sheet #4b

Name_____

Date_____

1) What will happen when the fan is turned on?

_____

_____

2) Why will it do this?

_____

_____

3) Now turn on the fan. What really happens when the fan is turned on?

_____

_____

4) Was the prediction accurate? _____

5) Describe what is happening to the air as it moves over the surface of the wing.

_____

_____

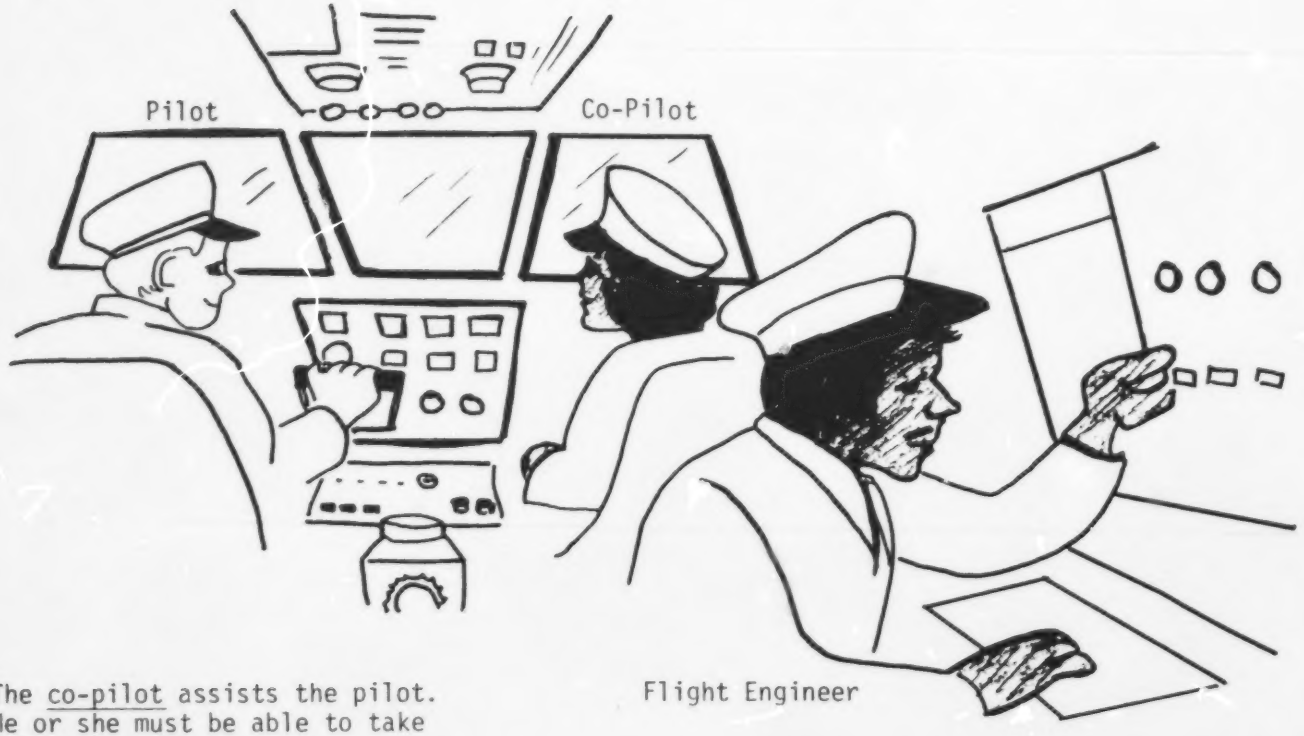
_____

_____

6) From your investigation try to draw how air pressure affects the airplane wing.

IN THE COCKPIT

The pilot pilots or controls the plane. He or she must be able to read gauges to make certain everything is in working order. The pilot must be able to remain calm and must be able to make wise decisions in emergency situations.



The co-pilot assists the pilot. He or she must be able to take over when needed.

The flight engineer inspects the aircraft before, during, and after a flight to make certain that everything is in working order.

Name some skills that these people may have learned in school that might help them in their work.

Activity Sheet #5a

Name _____

Date _____

Activity Sheet #5b

In the Cabin

Name_____

Date_____

A Stewardess

Flight attendants welcome passengers aboard the plane. They instruct the passengers in safety procedures such as how to use an oxygen mask and when to fasten seat belts. They make announcements over a public-address system. They check to see that all passengers are aboard and record the passengers' names and destinations.

1. What are some other responsibilities of the flight attendant?

_____

_____

_____

2. Name some skills that you think are needed by flight attendants.

_____

_____

_____

_____

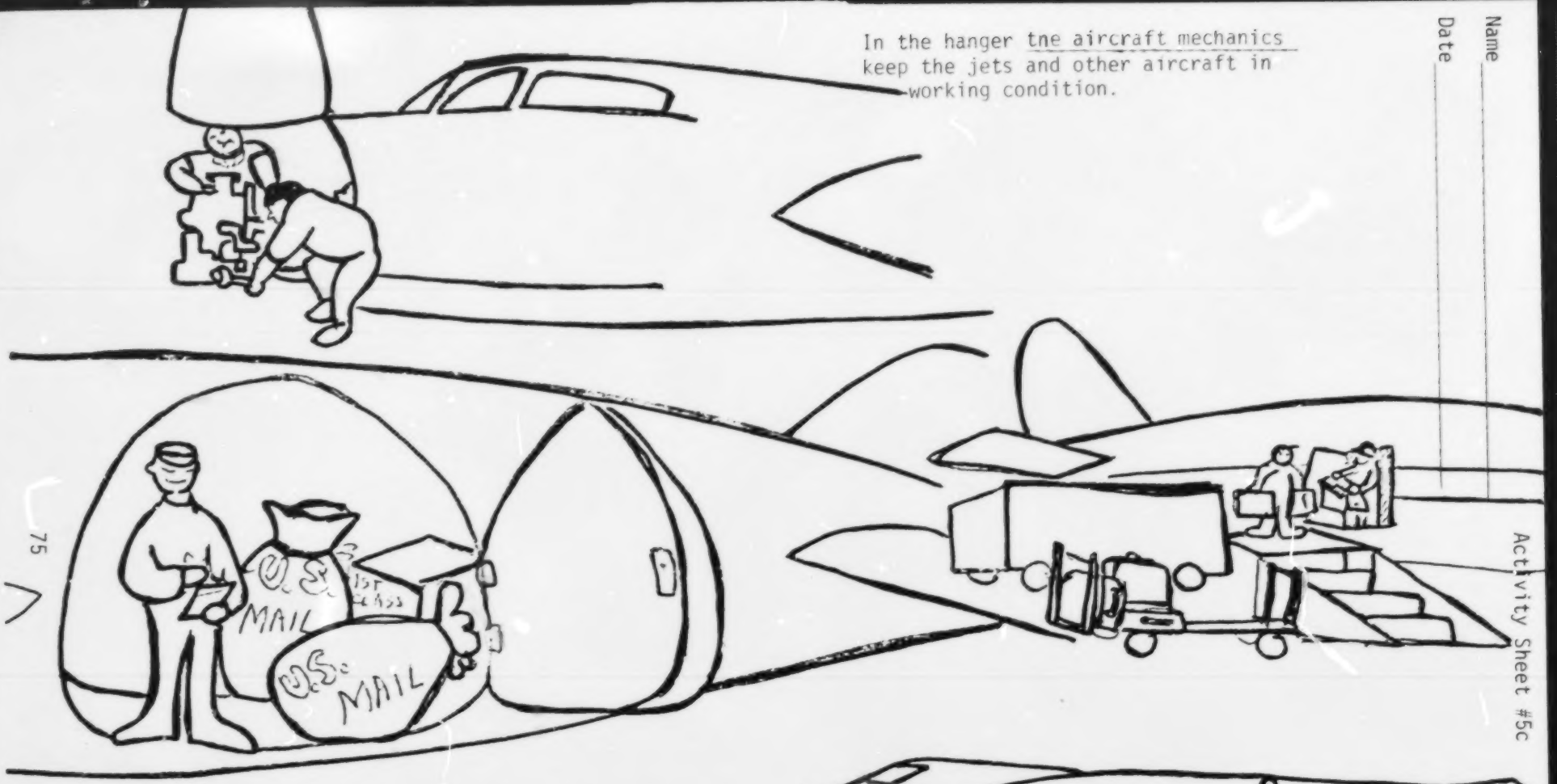
A Steward

Name _____

Date _____

Activity Sheet #5c

In the hanger tne aircraft mechanics keep the jets and other aircraft in working condition.



Other workers on the ground load and unload the baggage and other cargo, see that the cargo is distributed properly, prepare a list of cargo, and put fuel into the aircraft. What kinds of skills are useful to these workers?

_____

_____

_____

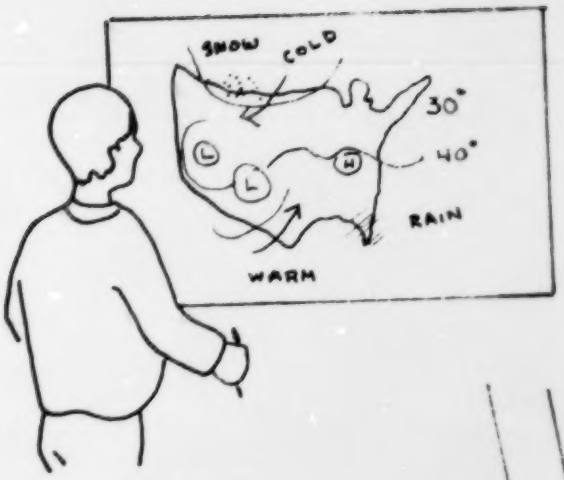
75

102

Activity Sheet #5d

Name _____

Date _____



Meteorologist

The meteorologist advises the pilots and other flight personnel about such things as visibility, winds aloft, and storms.

In the Control Tower

Airline Radio Operator

Airport Traffic Controller

The ground radio operator transmits and receives messages between station and aircraft or other ground stations by radiophone.

The airport traffic controller controls air traffic on and within the area of the airport. He/she keeps written records of messages transmitted or received.

Dispatcher

Airplane dispatchers coordinate airline flight schedules to make sure regulations of the FAA and the airline company are observed. They check the weather and decide whether or not a flight can leave safely and on time. He/she works with the pilot on all the details of the flight.

Activity Sheet #5e

Name_____

Date_____

There are many workers in the terminal.

Cooks prepare food for the passengers on the flights and for the restaurants in the terminal.

The ticket agents and the reservationist sell tickets and make reservations for passengers.

Many people such as waitresses, cooks, and bus boys work in restaurants in the terminals.

A clerk or car rental agent rents cars to customers.

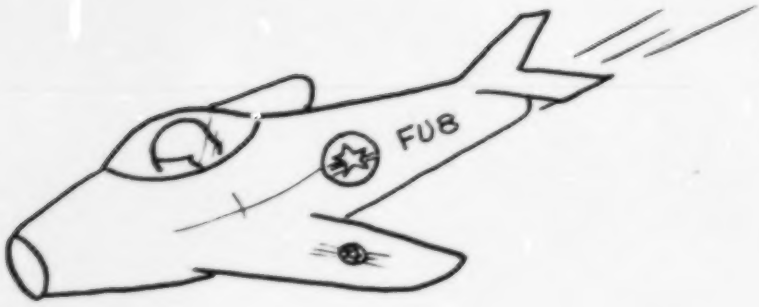
The baggage clerk or handler takes care of the passenger's luggage.

Activity Sheet #6

Name_____

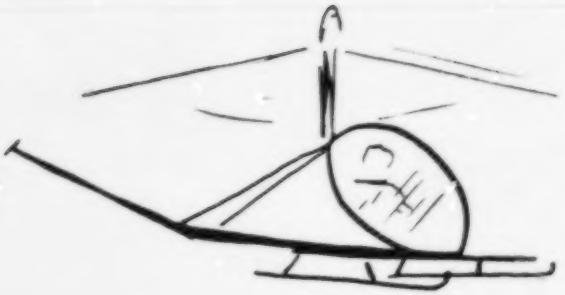
Date_____

Tell how each of these aircraft and these pilots help people.



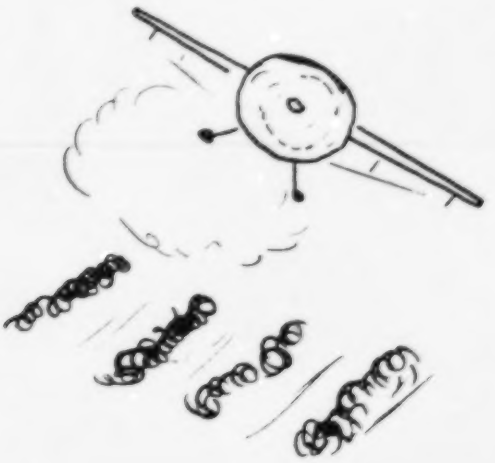
A. _____

_____



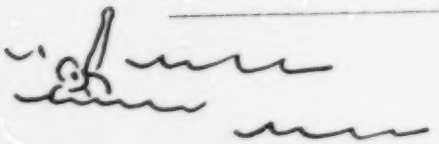
B. _____

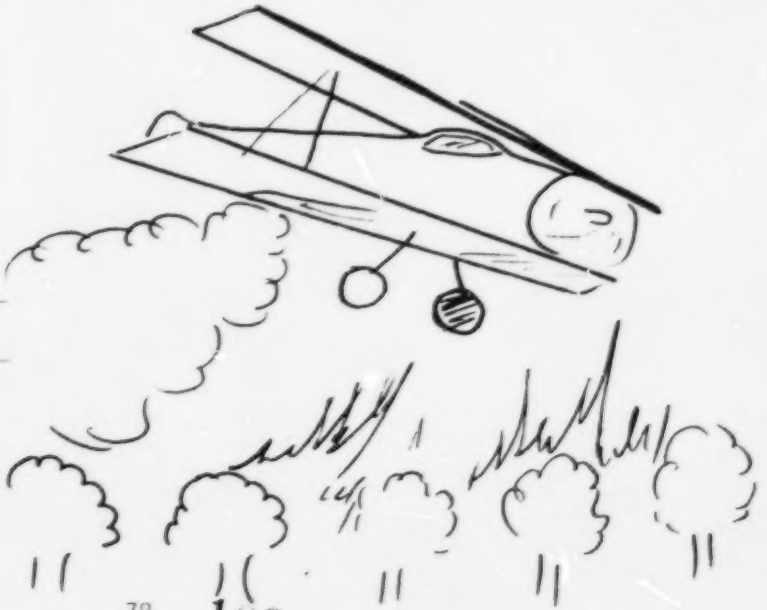
_____



C. _____

_____





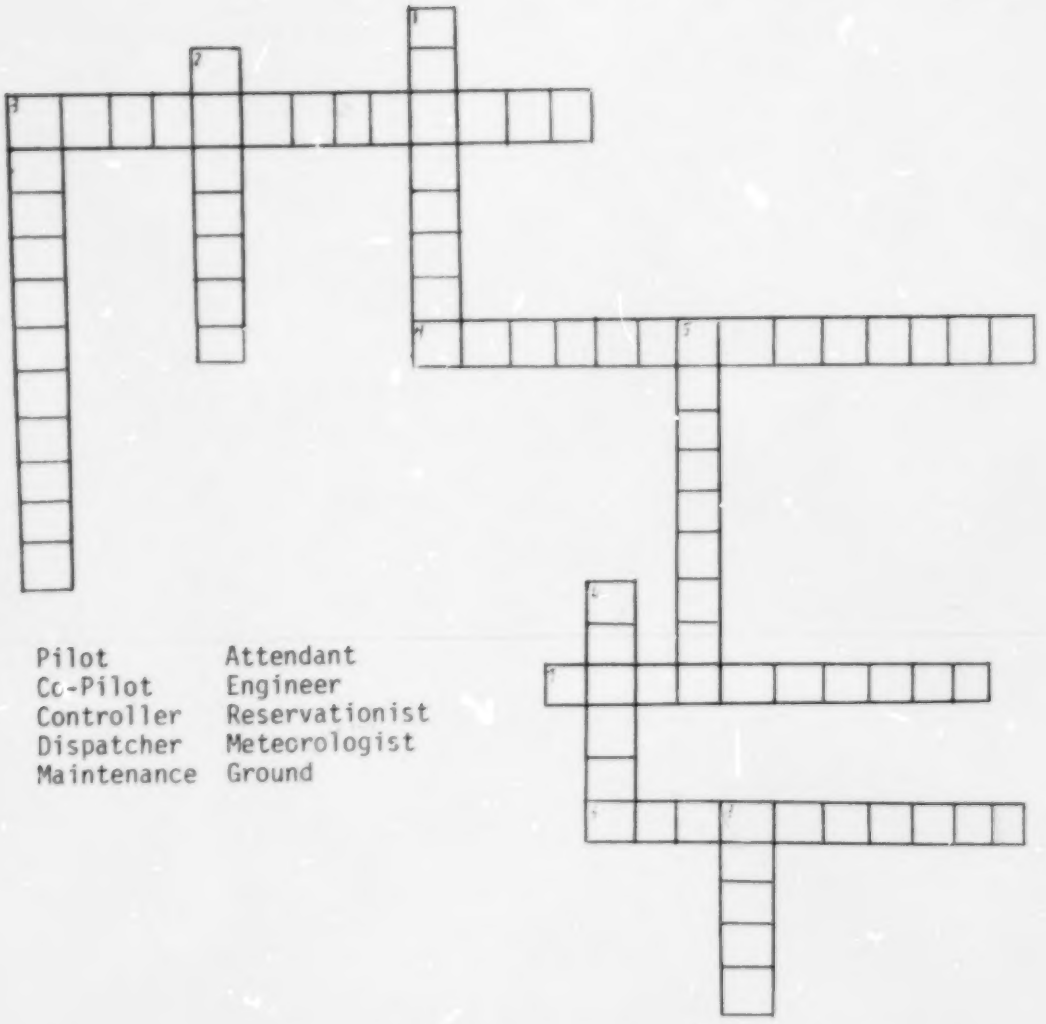
D. _____

_____

Activity Sheet #7

Name_____

Date_____



Pilot	Attendant
Co-Pilot	Engineer
Controller	Reservationist
Dispatcher	Meteorologist
Maintenance	Ground

ACROSS

3. A _____ makes a report on weather conditions.
4. An airline _____ sells tickets to passengers.
7. An air traffic _____ gives information to pilots to keep them from crashing into each other.
8. An airplane _____ helps pilots make flight plans.

DOWN

1. A flight _____ inspects an airplane prior to takeoff.
2. A _____ helps the pilot fly the plane.
3. The ____ crew repairs and installs aircraft parts.
5. The flight ____ makes people comfortable on their flight.
6. The _____ radio operator sends information about flight conditions to the pilot.
9. The ____ flies the airplane.

Activity Sheet #8

Name _____

Date _____

A A B C R A D I O T H G I L F D E F G S H A I J D C

K I L E M N O P Q Z R Y S T U V W X Y D Z R A B I D

C R D G E E D E S T I N A T I O N G H U I R J K R L

M C N A O P Q R S T Y A D C B G H M L O S I M H I B

C R D G E F E M E R G E N C Y G L H I L J V K L G M

N A O G S S E D R A W E T S P Q R I S C T A U V I W

X F Y A Z A B D M L K S V W E I K O D F H L J T B B

C T D B E F G E L E V A T O R H I J K E L M N E L O

M E C H A N I C P Q R F S T T U V W X Y R Z A R E B

C D R W E F M X Z O U L Y O A A L T I T U D E M B C

B D E E I F G H I S J K L L M R N O P S R Q N I S T

A U L V W N X Y E Z A I B C D E E F V G H I O N J K

R L L M N O D L P Q P R D N A L S D T U V W O A X Y

O Z E A B C A D E F G H M O I K V L D K E U L L V W

M A P B C G D E D E P A R T U R E F G U H I L J K L

E M O N E O P N I B A C Q R D W I N G A R P A E F Z

T L R M O A B C F G J K M T I C K E T L O P B U E J

E C P Z M K A I L E R O N V Y K X B F M E B C R S E

R P L A N D I N G G E A R L B K J N O I T A I V A T

Dirigible
Glider
Aviation
Jet
Balloon
Aircraft
Rudder
Wing
Propeller

Fuselage
Aileron
Elevator
Cabin
Destination
Arrival
Departure
Mechanic
Wind

Radio
Stewardess
Altitude
Baggage
Terminal
Ticket
Barometer
Land
Clouds

Flight
Emergency
Landing Gear

Activity Sheet #9

Name_____

Date_____

1. Record your predictions for the weather in the top half of each square.
2. Record the actual weather in the bottom half of each square.
3. Use Activity Sheet #10 to record whether your predictions were correct or incorrect.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

81

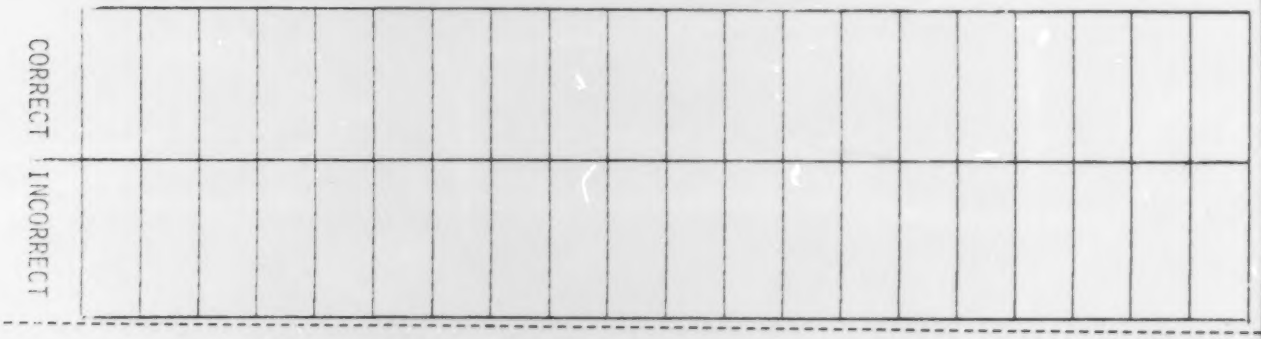
Activity Sheet #10

Name _____

Date _____

To Be Used in Reference to Activity Sheet #11

1. Shade in one (1) space each day to show whether your prediction was correct or incorrect.
2. At the end of the month answer the following questions:
   A. How many times were your predictions correct? _____
   B. How many times were your predictions incorrect? _____

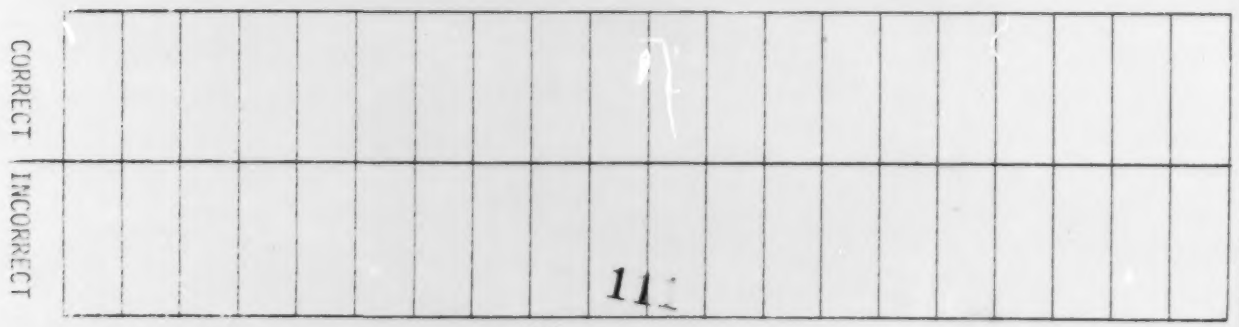


Name _____

Date _____

Activity Sheet #10
To Be Used in Reference to Activity Sheet #11

1. Shade in one (1) space each day to show whether your prediction was correct or incorrect.
2. At the end of the month answer the following questions:
   A. How many times were your predictions correct? _____
   B. How many times were your predictions incorrect? _____



SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___
H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___
H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___
H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___
H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___	H ___ L ___

1. Write the name of the month in the space at the top.
2. Record the following each day: the weather, the high temperature, and the low temperature.

Name _____

Date _____

Activity Sheet #12

Name_____

Date_____

1. It is snowing in _____.

2. It is both cloudy and sunny in _____.

3. It is sunny in _____.

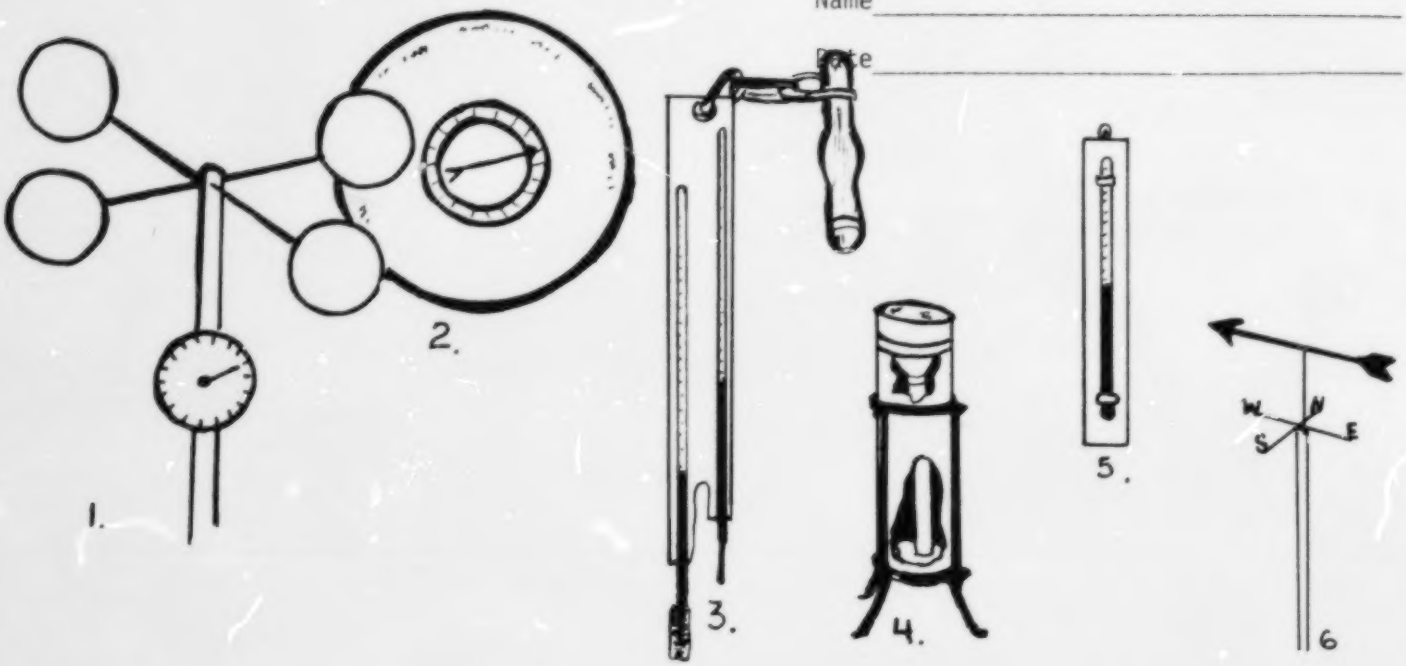
4. It is raining in _____.

5. It is cloudy in _____.

Activity Sheet #13

Name _____

Date _____



HOW WEATHER REPORTS ARE MADE

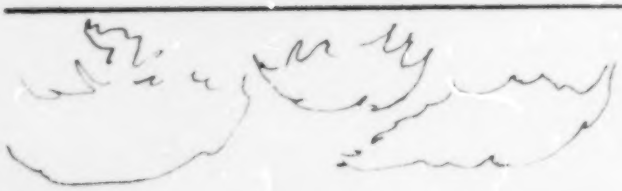
The weather bureau predicts weather with the instruments shown above. Each weather station reads figures from its weather instruments. When these figures are reported to the weather bureau, they make a pattern. This pattern is made into a weather report.

Millions of people want the weather report for various reasons. Students want to know what the weather forecast is for the next day so they can plan what clothes to wear to school. The farmers want to know what the weather will be so they will know whether they need to protect their crops from frost. Airplane pilots want to know what the weather will be at the airports in distant cities.

Fill in the blanks below. The first one is done for you.

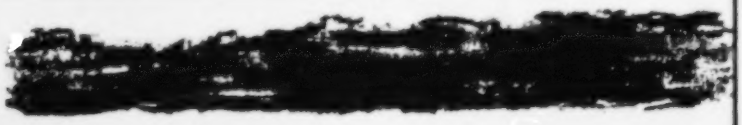
No.	Name of Instrument	What it Measures
1	Anemometer	Speed of the Wind
2	Barometer	
3	Hygrometer	
4	Rain Gauge	
5	Thermometer	
6	Wind Vane	

Activity Sheet #14 Name _____
Date _____



CIRRUS CLOUDS are feathery clouds made of tiny ice crystals high in the air.

STRATUS CLOUDS are in layers. When they follow cirrus clouds, rain or snow is likely to fall.



NIMBUS CLOUDS are dark with ragged edges. These low, solid clouds usually bring rain.

CUMULUS CLOUDS are big and billowy, and when they are in the sunlight, they are white. When you see these clouds, look for fair weather.

Examine the four (4) clouds illustrated above. These clouds usually appear in this order: cirrus, nimbus, cumulus, and stratus

Remember these facts:

1. Clouds are made of tiny droplets.
2. Fog is a cloud on the ground.
3. Warm air becomes colder as it rises.
4. Water comes out of colder air in the form of clouds.

Keep a record of the weather for two weeks.
(for example: weather - Fair; clouds - Cirrus; winds - West)

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
WEATHER							
CLOUDS							
WINDS							
WEATHER							
CLOUDS							
WINDS							

Activity Sheet #15

Name_____

Date_____

CLOUDS

FLUFFY, PUFFY, WHITE OR GRAY,
DRIFTING CLOUDS THIS SUMMER'S DAY,
WON'T YOU STOP AWHILE AND STAY?

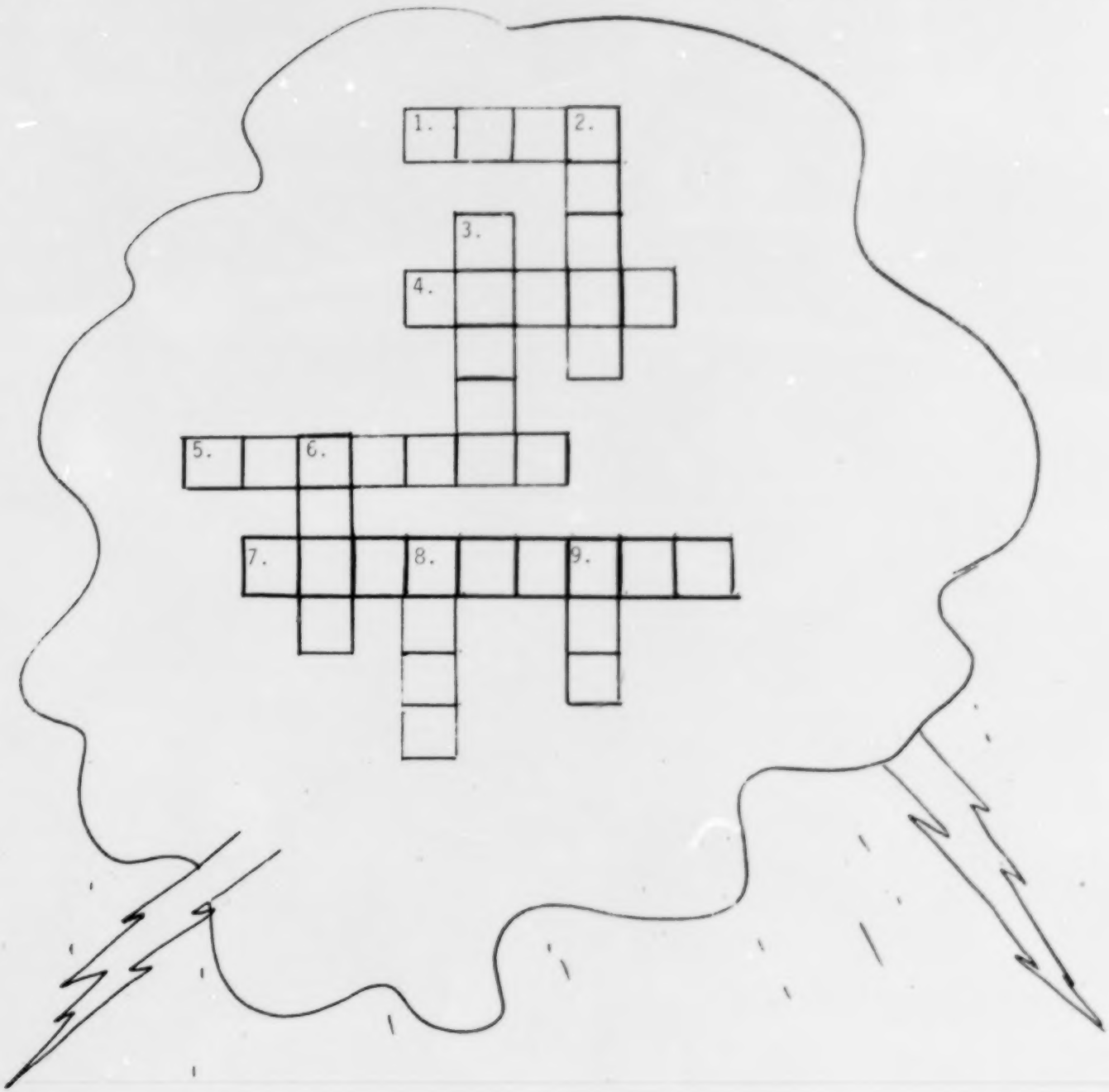
WHERE YOU'RE FROM NO ONE WILL KNOW;
TOSSED ABOUT BY WINDS THAT BLOW,
FLOATING CLOUDS, WHERE DO YOU GO?

By Charlotte Groff

Activity Sheet #16

Name _____

Date _____



ACROSS

1. sno___
4. s__e__t
5. to__na__o
7. l__g__tn__ng

DOWN

2. __ater
3. c__ou__
6. __a__n
8. __ail
9. __ce

Activity Sheet #17a

Name_____

Date_____

AIRLINES:	
NAME:	
TO:	FLIGHT #
FROM:	
DATE:	CLAIM #

AIRLINES:	
NAME:	
TO:	FLIGHT #
FROM:	
DATE:	CLAIM #

AIRLINES:	
NAME:	
TO:	FLIGHT #
FROM:	
DATE:	CLAIM #

Activity Sheet #17b

Name _____

Date _____

Correct the capitalization in the following baggage claims and tickets. There will be 18 mistakes altogether.

Airlines: north central

Name: Susan brown

To: chicago Flight: #602

From: coloma

Date: February 12, 1975 Claim #410

Airlines: american Airlines

Name: Mr. Dave johnson

To: Chicago Flight: #311

From: benton Harbor

Date: february 2, 1975 Claim #401

Airlines: Eastern

Name: mary Ann White

To: houston Flight: #366

From: chicago

Date: march 13, 1975 Fare: $61.45

Airlines: North Central

Name: dan jackson

To: benton Harbor Flight: #033

From: detroit

Date: March 6, 1975 Fare: $67.50

Activity Sheet #18a

Name _____

Date _____

1. There are 45 passenger seats reserved. How many more seats are left on the plane if there are 108 seats altogether?

   Answer: _____

2. There were 108 reservations made. Five people called to cancel. How many passengers are on the plane now?

   Answer: _____

3. A person pays $350.00 for a plane fare. The ticket costs $240.00. How much change does the person get back?

   Answer: _____

4. Janet wants to go to Washington, D.C. The ticket costs $289.00. Janet has only $151.00 saved. How much more does Janet need to save?

   Answer: _____

5. People are allowed only 44 pounds of luggage. Bob has 55 pounds of luggage. How many pounds overweight is Bob's luggage?

   Answer: _____

Name _____

Date _____

6. KIM HAS 24 POUNDS OF BAGGAGE. SHE CAN HAVE 44 POUNDS OF BAGGAGE. HOW MANY MORE POUNDS CAN SHE PACK?

ANSWER: _____

7. SUE PAID $245.00 FOR A PLANE TICKET TO WASHINGTON. SHE CHANGED HER MIND AND IS NOW GOING TO CHICAGO. HER TICKET NOW COSTS $45.00. HOW MUCH MONEY WILL SHE GET BACK?

ANSWER: _____

8. A WHOLE FAMILY IS GOING BY PLANE TO CHICAGO. MOM AND DAD'S TICKETS COST $100.00 EACH. THE TOTAL COST OF THE CHILDRENS' TICKETS IS $150.00. HOW MUCH DO THE TICKETS COST ALTOGETHER?

ANSWER: _____

9. THERE ARE 289 SEATS ON A JUMBO JET. ONLY 245 SEATS ARE FILLED. HOW MANY MORE SEATS CAN BE SOLD?

ANSWER: _____

10. TOM CAN HAVE 40 POUNDS OF LUGGAGE. HE HAS ONE SUITCASE THAT WEIGHS 20 POUNDS. HOW MANY MORE POUNDS IS HE ALLOWED?

ANSWER: _____

Activity Sheet #19

Name _____

Date _____

FILL IN THE BLANKS WITH THE CORRECT ANSWER USING THESE WORDS:

Rudder	Jet Engine	Flap	Fuel Tank
Throttle	Elevator	Landing Gear	Jet Air Intake

LOCATE THE FOLLOWING CITIES:

San Francisco	Chicago	Boston	Washington D.C.
Miami	New York	Los Angeles	Austin

Activity Sheet #20

Name

Date

Name_____

Date_____

Taking Off

It zooms along the runway
With wings and tail aflare;
Then wheeling up the skyroad,
The jet is in the air;

As trees and houses lower,
The big bird flashes by;
With nostrils blowing jet streams,
It races toward the sky;

Then spiraling ever higher
An eagle in its flight;
The jet is gone forever
Disappearing out of sight.

By Charlotte Groff

Name _____

Date _____

Activity Sheet #22

✱Indicates airports in large cities.

1. If a plane were flying to Los Angeles from New York, in which direction would it be flying?

_____

2. If a plane were flying to San Francisco from Boston, toward which ocean would it be flying?

_____

3. A plane just took off from Boston and is having trouble in the air, at which airport close by can it land?

_____

4. Flying from Dallas to Miami, the plane crosses which body of water?

_____

5. A small plane takes off from Chicago and heads for Los Angeles, at which city could it stop before it reaches Los Angeles?

_____

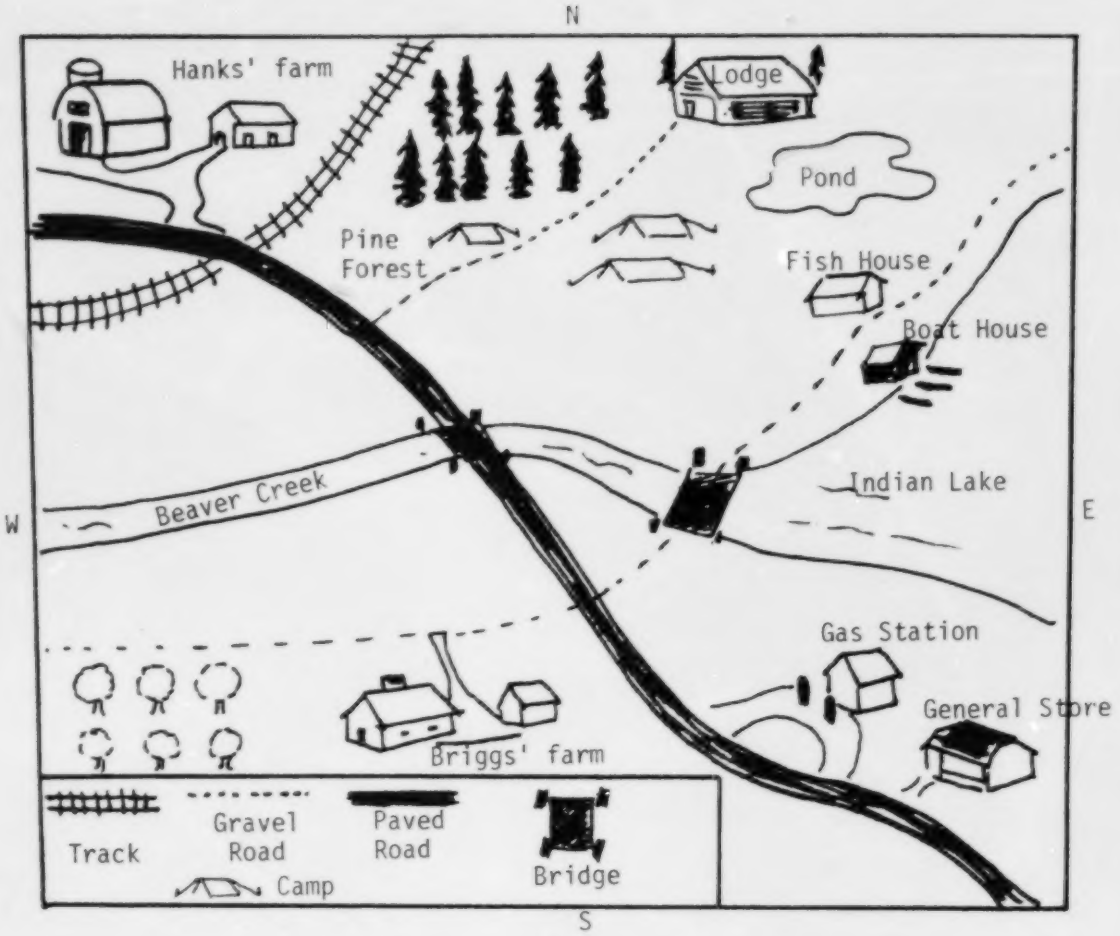
6. If someone flew from Boston to Chicago, which city would be next heading west?

_____

Activity Sheet #23

Name _____

Date _____



1. If a plane were flying northwest over Indian Lake, which of these would it fly over first?

   a. A pine forest
   b. A boat house
   c. Hanks' farm

2. Which is the farthest from the gas station?

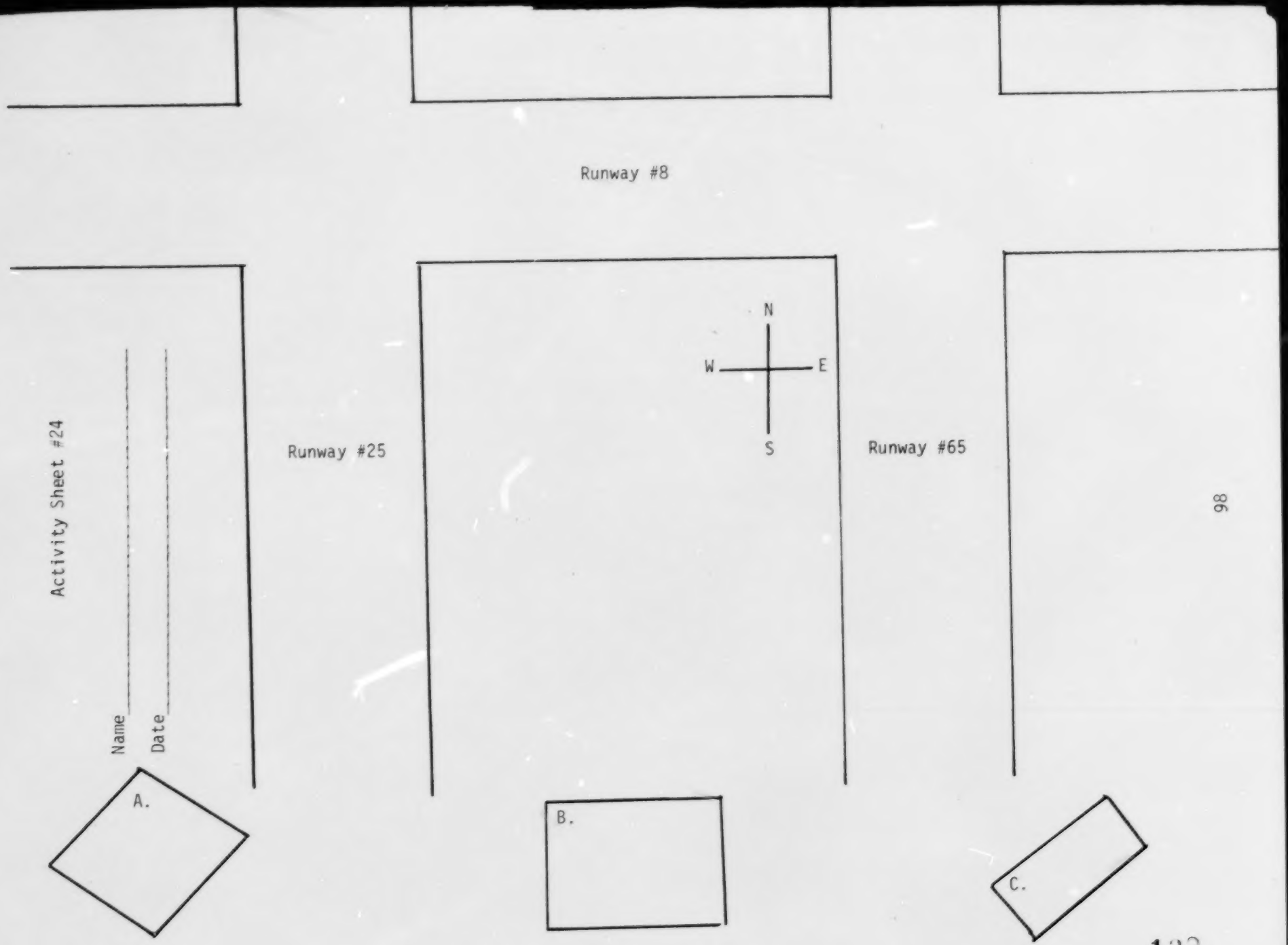
   a. A lodge
   b. A general store
   c. Briggs' farm

3. If a plane flew across the Pine Forest; a gravel road; and Beaver Creek, in which direction would it be flying?

   a. North
   b. East
   c. South

4. If a plane landed between a railroad track; a paved road; and Beaver Creek, it would be nearest what?

   a. Indian Lake
   b. A camping ground
   c. A gas station


Runway #8
Runway #25
Runway #65
N
W
E
S
Activity Sheet #24
Name
Date
A.
B.
C.
98
131
132

Activity Sheet #25

Name _____

Date _____

Pilots Preflight Check List			Date:
	Weather Advisories		Alternate Weather
	En Route Weather		Forecasts
	Destination Weather		Maps

FLIGHT LOG

Departure Point	To / From	Distance	ETA	ATA	Ground Speed